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ABSTRACT

This report is organized into seven chapters. Chapter One, an Introduction by Joseph C. Grannis, includes the most relevant sections of the proposal made by the Columbia Classroom Environments Project (CCEP) to Project Follow Through in August 1970. Chapter Two is an Analysis of the Child Behavior Stream Observations from the Spring 1971 Study of Four Programs by Joseph C. Grannis and David E. Jackson. Rochelle Mayer's and Elaine Casey's Progress Report of BORIS Observations is included in Chapter Three. BORIS is a child-based observation scheme which is designed to obtain information about a child's pattern of interactions with teachers, peers, and materials. Chapter Four is a discussion of Involvement Ratings in Settings by Michael Greene and Fay Logan. Chapter Five is an Analysis of the Spring Behavior Stream Data of Teachers by Sally Kaminsky and Frances Aversa. An analysis of the CCEP 1971 Social Context Data by Walter Furman and Peter Shaw is included in Chapter Six. Chapter Seven is a discussion by Joseph B. Roberts, Nancy Gropper, Leonard, and Carole Oligario on Research Procedures in the Pupil Role Interview Study. (JM)

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FIFTH PROGRESS REPORT

Contract No. OEC-0-71-0593

COLUMBIA CLASSROOM ENVIRONMENTS PROJECT

Joseph C. Grannis, Director

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
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EDUCATION

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Teachers College, Columbia University
New York, New York

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

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Chapter 1: Introduction

CCEP

The most succinct and accurate introduction we can provide for this research is the proposal we made to Project Follow Through in August, 1970. Accordingly, the most relevant sections of that proposal constitute this chapter.

On re-reading the proposal ourselves, we are struck by how often, and with what difficulty, we have had to re-discover leads to the problem that had been stated intuitively. When Roberts decided to abandon the more familiar approaches to "fate control" and to pursue instead Van den Daele's developmental approach to preferential judgment, we had literally forgotten that the proposal had stated, "The pupil (or anyone) is probably most aware of what is 'his own' at the point where he must choose between alternative possibilities (Kohlberg, 1963) and thus our research will look closely at these junctures." When Shaw concluded that parents, irrespective of Follow Through program, reported that their greatest satisfaction with their children's schooling stemmed from their perception of the programs' socializing the children to conformity, we were surprised again to find this anticipated as a possibility in the proposal. Once more, as we slowly became aware of a relationship between autonomy and integration, and then between autonomy and heteronomy, objectivity, and integration, we thought it was fortuitous that the proposal had suggested the necessity of relating autonomy to something vaguely hinted at as "adaptiveness" or "coping."

We would like to think that one reason this happened was CCEP's having been oriented at the start to the dimensions of classroom experience that matter most to the persons who have designed and participate in different classrooms, so that a research strategy that attempted to describe and understand the classrooms would eventually orient to these same dimensions. However, we realize too that the risk of our seeing what we expect to see is very high in an investigation centrally concerned with autonomy, that is, with a dimension of great value to the researchers themselves.

We have painstakingly reconstructed the research concepts and procedures available to us, especially from ecological psychology, developmental psychology, and sociology. The necessity of starting with these tools in their given forms and gradually adapting them to our questions also accounts in part for the process of our re-discovering CCEP's early intuitions about what lines of cleavage would emerge in the data.

Two studies that have been conducted in CCEP this year go beyond what was originally envisioned. Mayer's BORIS allows for the immediate coding of the behavior of children, observed one at a time, in relation to the child-teacher, child-materials, and child-child expectations of the various subsettings in which the children are found in a given classroom. This represents a first but crucial step in CCEP's learning how to combine the information gained from separate behavior stream and behavior setting observations, the procedures we used in 1970-71. Greene's and Logan's IRIS, which they have coordinated with BORIS, rates the involvement of individual children, by non-verbal indices, in the various subsettings in which the children are found. The BORIS-IRIS strategy, in some revised form, will be a key element in CCEP's further studies of children's autonomy in learning.

The Columbia Classroom Environments Project is not complete. As the proposal that follows indicates, we originally thought it would be possible to complete the pilot study phase in a year, and then to proceed to the main study, experimental phase in the following year. Just how naive this was is best measured by the labor that two years of the pilot study have required.

We now have a strange mix of feelings about the work completed so far. On the one hand, we are very much aware of the limitations of our sample, and of the crudity -- Paul Gump has recently called it "the over-richness"! -- of the research procedures we used for the pilot study. On the other hand, we have taken the data obtained by us, whatever its limitations might be, as seriously as if it were the last data we would have to relate to our questions.

CCEP went to great lengths a year ago to specify experimental observation settings for the second phase of the projected study. We now know better how temporary modifications in the found classrooms of different Follow Through and comparison sponsors could be employed to observe the effects of different classroom histories on children's autonomy, but the details of this would have to be worked out collaboratively with the sponsors.

The following remaining pages of this report represent most of the "Problems and Objectives" section of the Research Plan proposed in August, 1970. Except for the timing of the phases of the project, and the specifics of the Follow Through classrooms we thought we would be observing, the proposal is an accurate description of what CCEP has in fact accomplished in the pilot phase of the project.

We are profoundly grateful to the sponsors and teachers of the classrooms we have visited, Bank Street College of Education, the University of Kansas, the University of Oregon, and the Creative Teaching Workshop. We are indebted to many consultants for their help, particularly Paul V. Gump, Leland Van den Daele, Louis M. Smith, Lawrence Kohlberg, George Rand, W.W. Charters, Jr., Thomas Blinn, Karl Heiner, Jane Monroe, and Beatrice Mittelman.

Also, N.A. Kakurin and P.E. Noll, for without their brilliant research into "cut and paste" there would never have been this report, or any others for that matter.

ABSTRACT

Considerable evidence from previous research suggests that variations in the social environment of the classroom have effects on learning and performance in areas other than academic achievement, and indeed that these effects are largely independent of academic achievement. The present research is concerned with autonomy in learning, or the expectations and behaviors pupils develop pertaining to the governance of their individual activity in school. By implication, the research is concerned with the development of the pupils' future role capacities. Behavior stream observations will be employed to examine how individual pupils' activities are initiated, maintained, and terminated in exemplar classrooms of several Follow Through sponsors. . . .
Behavior setting observations will be employed to investigate classroom physical and social conditions influencing individuals' autonomy. Pupils, teachers, principals, and parents will be interviewed or surveyed to ascertain and compare their expectations for pupils' and teachers' classroom roles. All the data will be analyzed to determine patterns within and between the several types of classrooms. Criteria and preliminary procedures will be developed for evaluating the autonomy of Follow Through pupils' learning in standardized instructional settings varying in complexity of materials and in prescriptiveness of tasks with materials.

The Research Plan

Problems and Objectives. Evidence has been accumulating for some time now to suggest that variations in the social environment or social structure of the school or classroom have decided effects on learning and performance in areas other than academic achievement. For example, Glidewell et al (1966), citing a variety of studies of classroom social environment, make the following summary statement:

> Generally, dispersion of the teacher's social power and emotional acceptance has been found to (a) stimulate more pupil-to-pupil interaction; (b) reduce interpersonal conflicts and anxieties; (c) increase mutual esteem, rapport, and self-esteem; (d) induce a wider dispersion and flexibility of peer social power as manifested by a greater tolerance for divergent opinions in the initial phases of decision-making and a greater convergence of opinion in the late phases of decision-making; (e) increase moral responsibility, self-initiated work, independence of opinion, and responsibility in implementing accepted assignments. (p. 232).

(See also Leacock, 1969; Jackson, 1968; Smith and Geoffrey, 1968; Thompson, 1944.)

The present investigators are particularly interested in the expectations and behaviors pupils develop pertaining to autonomy, or the governance of their individual activity in school. It is our intention first to study patterns of autonomy in a variety of classroom social environments, and then to evaluate the transfer of pupils' autonomy to new instructional settings. Later in this proposal we will explicate reasons for focusing specifically on autonomy. We will also indicate how a preliminary analysis of autonomy has led us to be concerned with a second focus of expectations and behavior, "adaptiveness" or "coping" as we will call it at this stage of our investigation. Before turning to this explication, however, it is necessary that we state some considerations bearing on the study and evaluation of classroom influences on learning in general.

While both are included in the studies referred to in Glidewell's generalization, let us distinguish between investigations that account for classroom environment and its effects more in terms of teachers' styles (for example, Anderson, 1945; Flanders, 1960; Withall, 1949) and those that have looked somewhat more broadly at different instructional contexts or programs, for example, a comparison of "traditional" and "activity" classrooms (Jersild, 1939) or a comparison of conventional and computer-assisted instruction (Feldman and Sears, 1970). The present study will take the second approach as a point of departure. It will indeed examine teachers' behavior, but it will do this by relating teachers' roles to the instructional contexts in which they function, rather than by attempting to characterize styles that one wants, often futilely (Getzels and Jackson, 1963), to relate to teacher personality. No doubt the day will come when it will be more fruitful to study the interaction of personalities and contexts that results in teachers' styles. For the present there are two important reasons to concentrate on roles and contexts.

First, one suspects that personality constructs have been of such limited utility in attempts so far to account for classroom environment and their effects precisely because so much of the social structure of the classroom has not been susceptible to individual teachers' influence, to say nothing of pupils' influence. Jackson (1968) makes this point very effectively simply by his not resorting to individual teachers' personalities to account for the regularities he finds in classrooms. Jackson instead calls attention to the countless details of school that seem to reflect anything but personal style, and that in themselves may constitute a curriculum of life for the pupils. (See also Grannis, 1967.)

The second reason for starting with instructional contexts rather than teachers' styles is that contemporary instructional development projects are creating a range of alternatives to the conventional contexts in which most previous studies of classroom environment have been conducted. These variations may not depart from conventional patterns as much as one could imagine. Again, they may or may not give greater scope to the expression of teachers' personalities, a question that would best be investigated in research subsequent to the study that is proposed here. Nevertheless, the projects pose the question, what differences in pupils' expectations and behavior, if any, are to be found in classrooms that vary more in their social environments than conventional classrooms. The implementation today in Project Follow Through of a set of instructional models that, on the face of it, appear to differ widely in their specifications for both pupils' and teachers' roles, challenges us to apply our research to asking how children's autonomy is affected in different Follow Through classrooms, in comparison both to each other and to conventional classrooms.

Another general guideline for our study is particularly relevant to the question of evaluation in Project Follow Through. Many of the studies that have examined the social effects of variations of social environment in conventional classrooms have also looked for effects on academic achievement. It is safe to generalize about these studies, without going into the details here, that the social effects have been considerably more pronounced than the effects on academic achievement. In a substantial majority of these cases no significant effect on achievement has been detected, while those effects that have been found have tended to be quite modest difference for subgroups of the populations studied, subgroups usually designated as "fast" or "slow" learners (Anderson, 1959; Glidewell et al, 1966; Withall and Lewis, 1963). An exception to this that particularly should be noticed might be Jersild's (1939) comparison of pupils in eight "activity" and eight "traditional" elementary schools in New York City.

> This study demonstrated that behaviors of children in activity programs differed from those of children in traditional classes. The activity children participated more in planning and directing activities, were able to capitalize more on their interests and aptitudes, gave more outward appearance of self-direction, utilized their greater freedom constructively, and engaged in more diverse activities in the classroom. Nonetheless, the pencil-and-paper tests indicated that children under the activity regime did less well on the Comprehensive

> Achievement Test and lagged behind the control groups in certain tool subjects mainly arithmetic and spelling. Jersild and his co-workers suggested that the paper-and-pencil instruments used to measure the learning of the activity program youngsters were not adequate to the task of measuring outcomes in the activity classes. (Withall and Lewis, 1963, p. 163)

The classrooms of at least one of the three Follow Through sponsors with whom we propose to conduct our own study, the Education Development Center's Follow Through Project, bear certain striking resemblances to the activity schools of the Jersild study. However, the instructional technology that EDC is employing is more sophisticated than that of progressivism three decades ago. More significant, especially from the standpoint of our study, it is our hunch that expectations that children will achieve are more consistently maintained in the EDC (and other Follow Through) classrooms than in the progressive classrooms of the 1930's. This comparison to the past cannot be tested. What can be tested, however, is a more general inference to be drawn from the research on classroom environment and achievement. Efforts to change or improve the social effects of the classroom environment can be pursued with confidence that children will progress normally in their academic achievement, provided that the instructional program maintains pupils' access to information and teachers' and pupils' general expectations that pupils will learn.[1]

A proposition like this must be continuously re-examined and reformulated, as we will attempt to do in our own research. Still, it has been stated here not just an hypothesis but as an argument. We believe that it would be irresponsible not to pursue the social effects of education as vigorously and with the same commitment of resources as one pursues academic achievement. Our own stated commitment is to the value of autonomy, and to this value and its relation to evaluation in Project Follow Through we now turn.

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[1] We do not mean to imply by this that academic achievement is satisfactory for all classes of pupils in the schools today, but only that responsible efforts to obtain preferred social effects, as responsible is defined above, will not cause academic achievement to be less satisfactory. Our terms, the maintenance of pupils' access to information and teachers' and pupils' general expectations that pupils will learn, are meant to cover both the conditions that have been held reasonably constant in the social environment studies cited by Glidewell et al and factors that we think are related to Coleman's (1966) finding that "the social composition of the student body is more highly related to achievement, independently of the student's own social background, than is any school factor." We think, that is, that the social composition of the student body influences both the individual student's access to information and the expectations of teachers and peers for his performance. Varying the social composition of the classrooms, as distinguished from the social environment (although the environment may be affected by the composition) will influence academic achievement. In the present study composition will be investigated primarily as a factor affecting classroom environment and pupils' autonomy. Its effects on achievement will be examined only secondarily, in relation to the study of environment and autonomy.

* * * *

None of the projects cited above speaks just of children's self-management or self-directive activities indiscriminately, but all are concerned with the children's governance of learning. This clearly signals an intersection of the conventional norms of the schools and the special norms of these projects concerned (in different ways) with autonomy. However, it is likely that "learning" is interpreted differently between the projects and among the teachers within the projects. It is equally likely that nonproductive activity is defined differently between and within the projects, and it is possible that the projects differ in their views on how much nonproductive autonomous activity is necessary to obtain productive autonomous activity. We ourselves are interested in all of these questions, and in the whole system of physical and social conditions that bears on them.

We anticipate finding markedly different patterns of autonomy in the three projects, for both pupils and teachers, because the degree of prescription of learning activities varies systematically between the projects. IPI, as its title implies, prescribes activities in great detail, while the "open" classroom rationale of EDC prescribes relatively little. Bank Street presumably is very much like EDC in many respects, but the Bank Street emphasis on a core curriculum may entail more teacher direction and group constraint than EDC. All of these patterns are more complicated than this suggests, however, IPI pupils initiate certain activities and interactions much more frequently than pupils in conventional classrooms, and in some sense they pursue these activities independently. EDC is very much concerned with structuring the classroom environment to engage pupils in preferred activities. By describing and comparing the role patterns of three projects in detail, we hope to throw a light on the pupils' and teachers' behavior that studies of the projects in isolation could not generate.

We have elected to speak of "autonomy" both to focus our more general interest in the social effects of instruction, and to link what is described in statements like the above to norms and values that are of as much significance in the political, economic, and familial spheres of our society as they are in the formal institution of education. In the political realm Americans have valued autonomy, or self-government, since the beginning of the nation, and at the same time have disputed men's capacity for it. Today, in the demands of minority groups for equal participation in the governance of their lives, autonomy is as much as ever both a shared value and an object of struggle in American political life.[2] That this is an economic matter too is obvious where it touches decisions about the distribution of the society's resources. However, what may not be so commonly recognized, particularly among the very poor for whom it has the most drastic consequences, is that a capacity for autonomy is increasingly necessary to obtain employment in the American economy. We realize that in making this claim we are disputing the "other-directed" interpretation of bureaucratic behavior advanced by Riesman and his allies (Riesman, 1950; Miller and Swanson, 1958) that emphasizes most heavily the adaptive aspects of the behavior required in bureaucratic institutions, and we do not mean to deny that interpretation entirely. (See below, p. 8.) Still, and apart from criticisms that have been leveled against the Riesman thesis as it applies outside the economic sphere (Lipset and Lowenthal, 1961; Haber, 1962), one must recognize equally the increasing demand for capacities to take initiatives, to make decisions, to manage one's time and resources, to seek new information and invent new procedures, not only at the top but throughout the emerging occupational structure.

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[2] Studies of political socialization (Easton and Dennis, 1969; Greenstein, 1965; Hess, Tourney, and Jackson, 1965) have included autonomy among the norms of the American political system. However, the research has so far been limited to questionnaire and interview studies of the knowledge and acceptance aspects of the norms in question, and thus has not looked at the socialization of behavior or performance related to the political system.

* * * *

In education, autonomy or aspects of it, has been a basic concern and issue throughout the modern era. As in so many things, Dewey (1900; 1918; 1938) anticipated at least partial outlines of questions that the value, autonomy, poses for education, and that, following him, have been discussed among educators in terms of "democratic" and "authoritarian" teaching, "pupil-teacher planning," and "discovery learning," the last of which we mention because its rationale, even today when it has been the subject of considerable research (Shulman and Keislar, 1966), is based at least as much on a social value as on its known contribution to academic or cognitive achievement.

The terms "democratic" and "authoritarian" are less useful to the investigator than "autonomy." Though they have served to focus attention on certain classroom practices that influence autonomy, they have been applied chiefly to limited variations in the conventional teacher-centered classroom, and thus restrict the scope of our search at a time when far wider and more complex variations of social structure are being developed in the schools. This is the limitation too of the research cited by Glidewell et al, that it has been conducted in what must be considered today a relatively narrow range of types of classrooms or instructional settings.

The term "autonomy" focuses our attention more directly on the learning outcome that we seek, and lends itself, as a somewhat less polemical term, more to a performance description of what it means for a pupil to have attained or to act in accordance with a defined capacity. The details of this description are, necessarily, a principal target of the proposed research. However, we are stipulating at the outset that an individual's autonomy has generally to do with his initiating activities or tasks and social interactions, his regulating his own part in these activities and interactions according to information and standards that he comprehends and accepts, and his terminating and evaluating them in accordance with his own priorities and criteria that, again, he comprehends and accepts, or perhaps indeed generates. "His own" in this context is, of course, partly phenomenological, by which we mean that the individual's standards and criteria, even his priorities and needs, may in fact stem from internalized social expectations (Mead, 1934) but be perceived by the subject as his own. The pupil (or anyone) is probably most aware of what is "his own" at the point where he must choose between alternative possibilities (Kohlberg, 1963) and thus our research will look closely at these junctures.

On the surface, our definition or stipulation looks like one many judges could accept, both for operational validity and for the value that it represents. The concept of autonomy poses some problems; however, all of which bear on its use in evaluation.

The first problem is that autonomy is not simply an asocial or non-adaptive quality of performance, but depends on one's ability and disposition to make use of the alternatives and means that are available in a situation. This verges on the very "adaptiveness" from which we have distinguished autonomy in our criticism of Riesman, and suggests that while autonomy may be less compromised when it is the individual's means that are adapted than when it is his goals themselves, autonomy and adaptiveness are still related. Means and ends interact. Bruner's observation that "Coping respects the requirements of problems we encounter while still respecting our integrity" (1966, p. 129) captures that aspect of adaptiveness that may indeed be required to maintain autonomy.

* * * *

We find ourselves conceptualizing the school's influence on pupils' autonomy with essentially two, complementary sets of constructs. One set derives from the more descriptive approach of ecological psychology pioneered by Barker and Wright (1951) and currently being adapted to a variety of studies in education, for example Gump's (1967) study of behavior settings in elementary school classrooms, Caldwell and Honig's (1970) study of behavior in preschool environments, and Smith and Brock's (1970) investigation of behavior in a high school science classroom. Ecological psychology identifies behavior units in two ways, both of which are fundamental to our questions. First, the classification of structural-dynamic characteristics of behavior attends to episodes within the behavior streams of individuals. It examines various qualities of the initiation and termination of episodes and the relationships of episodes to one another as subsets of larger goal-directed behavior sequences. The attention in this to the relationships of an individual's activity to other persons, as the instigators or the targets of episodes, has much in common with interaction analysis (see Bellack et al, 1966, and Adams and Biddle, 1970). At the same time, the behavior stream approach is better adapted, as we feel our own research must be, to the study of individual pupils' behavior in time, a capability that interaction analysis has thus far only developed for the study of a teacher (Flanders, 1960).

The second way that ecological psychology identifies behavior units is in terms of their material-content and role properties, an approach which searches for the regularities of individuals' activity in different behavior settings. Our need to look for regularities in pupils' and teachers' behavior as a function of their engagement in different social settings and with different materials--mathematics or science, manipulative or symbolic, programmed or free, etc.--again directs us to the use of ecological psychology.

Our procedures for analyzing behavior stream and setting observations are commented on in Section 3b of this proposal.

Ecological psychology has been deliberately developed as a relatively hypothesis-free, taxonomic approach to behavior. The present investigators, however, are obviously committed as well to a second, more theory grounded frame of reference, sociology. It is not only that it is the learning of norms or roles that is at stake, or that from the sociologist's point of view, the social structure of the classroom might be more effective in this than the formal or didactic content of the curriculum. Sociology leads us to examine closely the larger matrix of adult roles in the school, to discover how these might affect learning in ways that support or confound the curriculum designer's intentions. (See especially Inkeles, 1969; Katz, 1954.)

At this point in our inquiry we are struck by the apparent preoccupation of American schools with authority, the problem that was central to Waller's classic interpretation of the schools 40 years ago (1932) and that now is the subject of a substantial literature of radical criticism of the schools (Friedenberg, 1959; Holt, 1964; Kozol, 1967) and, at the high school and college level, increasingly the focus of student rebellion (Richards, 1970; Libarle and Seligson, 1970). From Waller's account one cannot judge whether he thought the problem of authority in the schools took any special form in the American context, but today the evidence that it does is very arresting. Two phenomena of American society generally may have particularly significant consequences for the schools, our increasing reliance upon the schools for the socialization of children and youth (Bronfenbrenner, 1970) and the historic vulnerability or, more exactly, challengeability of the authority of virtually all political positions in the society (Almond and Verba, 1963), increasingly including school positions. If, in short, a teacher is required at one and the same time to be the agent of socialization and to defend his (or her) authority from the challenge of pupils, parents and school officials alike, the nature of his authority is likely to be a peculiarly pressing concern. Related to this too is the historical fact that the schools have played a major allocating role in the society (Parsons, 1959; Sexton, 1961) and the observation that the public today, particularly those in low-income positions, are becoming very much more aware of, and intolerant of, the way the schools have allocated pupils to different statuses in the society. Certainly these observations do not apply equally to all teachers and all communities in the United States, but they point nonetheless to formidable obstacles to the realization of autonomy for either teachers or pupils in the schools.[3] It is our preliminary hunch that these conflicts help to explain, among other things, the rather pronounced swing between authoritarian and permissive practices that various observers have taken note of in American classrooms. (See, for example, SSRS Newsletter, Spring 1970; Henry, 1963; Kohl, 1969.) We do not mean to prejudge the outcome of these issues. We are indicating our present formulation of problems that we expect to find IPI, EDC, and other Follow Through sponsors responding to in different ways.

In the process of developing this proposal, more problems have been identified than any one study could address itself to. We have wanted to gain some view of the territory ahead of us, even though our path to it will undoubtedly be altered as we go along. Specifically, the line of cleavage between the questions to be dealt with now and those that must be reserved for later is indicated by the quite different samples of classrooms that the proposed and future research require. In brief, it is proposed that the research in 1970-71 be conducted in classrooms selected by the Follow Through sponsors themselves, within some agreed upon socio-economic and geographic parameters, as exemplars of the models of instruction that the sponsors are endeavoring to develop. Research subsequent to 1970-71 will be conducted in samples of all the Follow Through classrooms, and comparison conventional classrooms, to evaluate the effects of Follow Through and to study the dissemination of the sponsors' models beyond the exemplar schools.

In describing our procedures in Section 3b of this proposal we will outline the products to be expected from each phase of the total project through December 1972. Here let us state in very general terms the basic objectives of research. Our work in 1970-71 will contribute to the realization of all of these objectives, but none of them will be fully accomplished before 1971-72.

1. To develop procedures for observation and analysis of individual pupils' and teachers' classroom behavior streams, in order to identify patterns of autonomy in individuals' behavior.

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[3] We would not exempt all private schools from this generalization, but we do observe that the voluntary nature of the relationship between the private school and its pupils or their parents, plus the social class composition of the private school, significantly affects the conditions we are referring to here.

2. To develop procedures for observation and analysis of classroom behavior settings, so as to be able to discriminate settings within and between the various Follow Through classrooms and comparison conventional classrooms.
3. To relate the patterns of autonomy described for individuals to the social and physical properties of the behavior settings in the various classrooms.
4. To survey pupils', teachers', principals', and parents' expectations pertaining to pupils' and teachers' roles in the various classrooms, and to relate these expectations to observed behavior.
5. To develop procedures and criteria for observing and rating the autonomy of pupils in new instructional settings.
6. To plan and carry out an evaluation throughout Project Follow Through of the various instructional models' effectiveness for promoting pupils' autonomy in learning.
7. To plan a study of the dissemination of selected sponsors' models beyond the exemplar classrooms to the generality of schools in which they are being implemented.

* * * *

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Chapter 2: Analysis of Child Behavior Stream Observations from Spring, 1971, Study of Four Programs

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Abstract.

16 pupils, 4 each from Bank Street, Bushell, Engelmann-Becker, and Open programs, were observed for a whole day in their classrooms, two from each program. The transcribed behavior stream observation records have been analyzed to show the proportions of time spent in main and alternative episodes, the manner in which episodes were initiated and terminated, the episode contents, the functional relationships of the episodes to one another, the functional relationships among the sections and phases of the episodes, the energy pacing, cognitive task, and interaction conditions obtaining over each 30 second interval throughout each pupil's day, and the match of each pupil's behavior to these conditions or expectations throughout the day. The analysis of this data reveals strong correspondences between the structure of the pupils' days and the rationales of their respective programs, regarding the kinds and degrees of control the pupils exercised over their activity, the organization of the knowledge contents and processes, and the social organization of the pupils' activity. A number of predicted relationships have been found to obtain across programs, in general that congruent conditions of teacher or pupil control result in more on-task behavior than incongruent conditions of teacher and pupil control, and that more integrated knowledge contents tend to be associated with more pupil control of the physical and social conditions of their activity. An unexpected finding across programs is that the activity of the boys' days was more teacher directed than the activity of the girls' days. The behavior of individual children varied in intra-individually

consistent ways within programs, especially in the less corecive subsettings, suggesting that the observation and analysis procedures are powerful enough to discriminate between individuals in a future study of the behavior, in controlled settings, of children with different program histories, if indeed the observed program-specific behaviors do transfer to new settings. Further intensive analysis is required to understand how the generalizations break down, that is, in what special ways each individual and each classroom interact with the program and general relationships. The possibilities for this are limited in the present data, because most of the individual pupils were not observed for enough time in appropriately contrasted subsettings to more than suggest the nature of their individual behavior patterns. The individuality of each pupil is quite evident in the data, but more as one or another variable of the analysis is idiosyncratically prominent in its application to a given pupil, rather than as each pupil relates systematically to the whole array of variables. For the latter analysis, controlled settings, again, must be designed, perhaps collaboratively with program sponsors. The present pilot investigation provides a basis for this next step.

Sample and observation procedure.

Eleven second grade classrooms were observed in the Spring 1971 phase of CCEP's study, three each from the Bank Street, Bushell, and Engelmann-Becker programs, and two open classrooms recommended by the Creative Teaching Workshop. Arrangements for observing in a third open classroom fell through too late in the spring to make alternative arrangements. Our intention was to pick up a third open classroom in the early spring of 1972, but by this time we had concluded that our observation in one Bushell classroom was invalid because the pupils had spent too little time under program conditions on the day they were observed. We eliminated this classroom from the sample to be coded, and we eliminated also the only two classrooms observed by us in which the majority (virtually all) of the children were white, on classroom each from the Bank Street & Engelmann-Becker programs. Seven of the eight classrooms from which the observation records of 16 children have been coded were located in major cities in the Eastern United States and one classroom was located in a rural town.

. Most of the children in seven of these classrooms were Black or Puerto Rican, and the children in the eighth, an open classroom in Manhattan, were Chinese-American and Puerto Rican. A majority of the children in all eight of these classrooms came from low-income families. Except for one Chinese-American girl and one Chinese-American boy, all of the subjects observed individually were Black or Puerto Rican.

The parent(s) of each child in the classroom we observed received a letter from CCEP describing our procedures in the classroom and requesting that the parent(s) telephone a school or local Follow Through number we provided if they did not want their child to be observed individually. No parent called to refuse this permission. On the day before a given observation started, we let the teacher withdraw from the list of children who might be observed individually any child whom she thought should not, for a special reason, be selected. We then chose one boy and one girl by chance from the remaining names. Only one teacher, from an open classroom, withdrew more than two children from the pool, and accidently we observed a boy she had wanted to exclude.

We did not think of the children selected, or ask the teacher to think of them, as "average" or "typical" individuals. We assumed the individuality of the children, as we assumed that the ways the classrooms did or did not respond to children's variability would be shown structurally through our observation of any children. Children who did not speak English, who were physically impaired, or who made the teacher exceptionally uncomfortable, were those we had most in mind in allowing a teacher to exclude children from the sample.

Usually, but not always, the teacher and the children observed became aware of the choice by the end of the observation. At the beginning of class on the first of our two or three days in a given room we explained briefly to the children as a whole that we had been told theirs was a good classroom, and that we would be talking into recorders in order to keep notes on the classroom. We then asked them to go on with their usual day, and we ourselves proceeded to become as uninteresting as possible. Except when observers were replacing one another, there were always two, and not more than two, observers in the classroom at a given time. On one day, the two observers would each be observing one of the two children selected for behavior stream observation, trying to record the children's every action at an intentional level of behavior. A team of six observers usually took turns for this every half hour throughout the children's day in the classroom. On a second day, the same team took turns making a behavior stream observation of the head teacher's day in the classroom, and making a behavior setting observation of the entire classroom at 5 minute intervals throughout the day. We stayed a third day only if this was necessary to complete our videotaping of the major subsettings of the classroom.

The behavior stream observation tapes for children have all been transcribed, episoded, and coded for 62 variables in each 30 second interval of the observed day. The average number of minutes we observed a child was 238, or just under four hours observed time in the classroom. The longest time was almost six hours and the shortest less than three. When a child left a room for, say, music or recess not under the program auspices, we did not follow. On every trip one observer or another failed to push the record tab at least once on his recorder, and then had to write up the observation from memory afterward. If this record was not codable and could not be supplemented later on by a video record, we lost that time.

The apperceptive masses of the observers varied considerably! One was particularly interested in the teacher's behavior, another attended especially to the non-verbal behavior of the children, and two were most interested in the cognitive nature of the children's tasks. Barker and Wright argue optimistically that these observer differences cancel each other out, or build up a greater validity of the observation record as a whole. Training and experience do make a difference, however, and while all of the observers engaged in paired observations during trials before the Spring 1971 data collection, CCEP's best observer, in terms of the completeness of information required subsequently in the coding, was one who had done behavior stream observations extensively in Burton White's early childhood project at Harvard. Kaminsky reports briefly in her chapter on the analysis of the teacher observation records (Chapter 5) a study she made comparing the records of the different observers with new records made by observing teachers in a selection of videotapes that overlapped in time with the original observations. She found among six observers a range of .83 to .93 agreement when all information regarded as centrally necessary to the coding of teacher behavior was matched against actual behavior as represented on videotape. In all cases where discrepancies occurred it was in omission rather than in misinterpretation of what actually happened, and these omissions did not affect the regularities of frequency and rhythm in a teacher's behavior. Children's behavior, however, is often more private than the teacher's in the classroom, particularly when the children are engaged in quiet conversation that the observer cannot hear without intruding too deeply. For this same reason it is more difficult to observe a child's behavior from a video record. The most serious shortcoming of the observation records is indeed their inadequate reporting of the child-child interactions. How this has limited the coding is discussed below. Despite the variations and irregularities that are cited here, strong patterns have emerged in the data, not only characterizing programs, but also describing behavior in subsettings across programs. By this we certainly do not mean that we have pretended to sample what happens in all the classrooms of one sponsor or another. Rather, these exemplar classrooms are different from one another in a variety of ways that correspond to program rationale, and in addition we find some very interesting regularities across these classrooms.

Let us ask how intrusive we were. Every time the observer reported his subject looking at him, we coded Watch Observer in the behavior stream transcript. If it was reported as just a glance without the subject's holding his gaze, we coded Glance at Observer. A watch or a glance does not necessarily mean that the subject knows he himself is being observed. Also, a watch only infrequently means that the subject is watching for the whole, or even half, of a 30 second interval. Children in the Bank Street Program watched or glanced at the observer in 4% of the 30 second intervals, in the Bushell Program 7%, in the Engelmann-Becker Program 7%, and in the Open Program 6%. The one teacher who reported afterward that she was pressed by the observation was one of the Bushell teachers, in whose classroom the watches and glances averaged 8% for the two subjects. However, this teacher also told us that she thought the children themselves had behaved in their customary way during the observation, which included many more off-task interactions with other children and with objects than the watches and glances toward the observer. CCEP's observation was, in fact, regularly commended by the teachers for not having disturbed the day of their classroom. We think we know what it means to be highly intrusive, from our experience in a very ordinary classroom (for the Fall 1970 pilot-pilot study) where we seemed to be the only event of interest to the children.

Evaluation questions and theoretical-empirical concerns.

In the coding and analysis section below, the specific codes will be explained in conjunction with presenting and interpreting our findings. At the risk of some redundancy, we want to sketch first the frame of reference in which the codes have been generated. Much of the argument for what we have done has been developed in CCEP's original proposal and the four progress reports to date, and the reader will be referred to this earlier writing as much as possible. Still, we recognize the difficulty of coordinating all of this material, and of keeping track of CCEP's gradually developing ideas. This chapter will be written as if the reader had little prior knowledge of the investigation.

CCEP had decided to study the autonomy of children's thought and action in the classroom well before we decided to make behavior stream observations of individual children. Let us call autonomy simply "the governance of self's thought and action by self." Autonomy emerged as the first principal concern of CCEP's study because it was valued by us, because it in some degree characterizes the kinds of work in our society that are reported to give more satisfaction, because it seems to be increasingly required for employability in our economy, and because it seemed to be a crucial variable distinguishing the learning environments of different pre-school and elementary school experimental programs. (See especially the August, 1970 proposal "Autonomy in Learning," pp. 1-14, and the June, 1971 proposal "Autonomy and Integration in Learning," pp. 6-8.) We do not want to say simply that some programs valued autonomy and others did not, but that programs seemed to vary considerably in the degree or specificity of their prescriptiveness for pupils, and that the programs seemed to interpret autonomy differently. Our first concern has been to investigate these impressions empirically, and to begin to ask how different patterns of teacher and pupil control might contribute to pupils' immediate and future control of their own thought and action.

Even in the original proposal CCEP sensed the need to relate autonomy to a second dimension or focus of behavior, which we at first called "adaptiveness" or "cooperativeness." Our crude analysis of the Fall 1970 pilot-pilot observations led us to associate autonomy with integration in the Second Progress Report, and by the Fourth Progress Report we had differentiated among autonomy, heteronomy, objectivity, and integration, hypothesizing that the capacity for all four developed interactively. The analysis of the data to be reported in the present chapter throws some further light on these associations, but the principal emphasis will be given to autonomy.

From the moment that behavior stream observations were suggested to us, by Stephen Lehane, one of the students who helped formulate the original proposal, we recognized the potential relevance of Barker and Wright's methodology to CCEP's interest in autonomy. Autonomy clearly concerns the organization of self's behavior with respect to goals, and the behavior stream observation attempts to record and analyze the individual's behavior in relation to his intentions, that is, at the level of his goal-directed activity. Granting that we would have to examine the sense in which an individual's goals might or might not be "his own," our first assumption was that his behavior would appear to be chaotic if it were not in some sense regulated by intentions. (See the Fourth Progress Report, pp. 106-127, for a discussion of the goal directedness of activity, particularly the hierarchical structure of episodes including sections including phases, which is presumed by much of the discussion that follows here.) Aside from this general idea of the relevance of the behavior stream, we were very much aware of how little we knew about the conditions of autonomy and of behavior, generally, in the classroom, and behavior stream observation promised to record data for uses that we could not immediately anticipate.

Beller's (1955) criteria for "independence" provided an established point of departure for CCEP's thinking more specifically about the nature of an individual's goal-directed activity, in anticipation of the coding we would do. Beller rated preschool children's classroom activity with regard to their (1) taking initiative, (2) overcoming obstacles, (3) persistence, (4) just wanting to do something, and (5) wanting to do things by themselves. Let us indicate in what ways we have gone beyond or fallen short of these criteria. The reader must, however, understand the premises of this. The data collected in the Spring 1971 observations allows us to say very little about the children's relative capacity for autonomy, construing capacity as a mix of abilities and dispositions for relating independently to goals, or to other persons, objects, or symbols. Rather, the data shows relatively autonomous or non-autonomous behavior under conditions which affected the possibilities for autonomy differently in different classrooms. More valid ratings of the children's capacity can be made as the subsettings in which they were observed become more similar, but we did not design the Spring 1971 observation for this purpose. Our stated objective was to describe patterns of autonomy, for the eventual purpose of being able to rate children's autonomy in settings designed especially for evaluation.

(1) Taking initiative. Barker and Wright's technique of distinguishing between spontaneous, instigated, and pressured initiations of behavior episodes promised to relate to Beller's "taking initiative," and we have used it accordingly. CCEP also, however, deemed it necessary to know what choice a subject has in initiating one episode or another, that is, whether he spontaneously initiated something he was required to do, or spontaneously initiated something he had elected. Thus we have designed an options code (see below for all codes) to apply simultaneously with the initiation code, trying to anticipate the various possibilities between a single prescribed option (no option!) and a fully open choice of activities at a given time.

CCEP also concluded that it would be important to examine the initiatives and the options that an individual might exercise within a behavior episode. For this we have further applied the initiation and options codes to sections within main episodes, and we have rated the degree of teacher pacing and the prescriptiveness of operations at the phase level of the episodes. Recognizing the sections and phases within the, say, 10 or 20 main episodes we might identify within a pupil's in-classroom day has, to say the least, proved problematic. Sections are most readily recognized in rationally organized, segmented instructional behavior sequences, for example, when an arithmetic lesson consists of addition problems followed by subtraction problems followed by equations involving both operations, and so forth. Sections are less readily recognized when, on the one hand, the behavior is so loosely articulated from one moment to the next that it has only a thematic connection, as in some recitations, or when the behavior is so integrated over time that the designation of sections arbitrarily divides it, as in a child's smooth reading for meaning or his steady drawing of a picture. We have coded sections in the behavior stream observation records only when we were more confident of their boundaries. Phases are even more difficult to recognize. Rather than try to indicate in our coding the exact beginnings and endings of each phase of an episode or its sections, we have coded for each 30 second interval the nature of the phase at that time and its relationship to the phases preceding and following it. Operationally, this means in relation to initiation that we have asked for each 30 second interval whether the teacher pacing, or the teacher's regulation of the energy expenditure or work rate of the pupils, was high (continuous), medium (intermittent) or low (occasional) over the time surrounding the interval, and in relation to options whether the phase routing (operations sequences) was completely prescribed, partially prescribed, or unprescribed. In sum, we have attempted to recognize the initiative and choice that are possible and realized at each level of intentional behavior, construing the behavior as hierarchically organized by episodes, sections, and phases.

What is "possible" and what is "realized" are interdependent. When we code an episode or section initiation as instigated by a teacher, or when we code teacher pacing at the phase level as high, there is a strong presumption, in all of the classrooms CCEP has observed in, that the child's independent regulation of his energy expenditure simply is not possible at that time in relation to the sanctioned activity. We can, nonetheless, look in the observation record to see if this is the case, or if the teacher is adapting her behavior, with or without the child's request, to a situation in which the child is not exercising a greater initiative than is expected or allowed.

(2) Beller's "overcoming obstacles" is a criterion that has greatly interested CCEP, but that we can only/apply systematically to situations that are more comparable than those we found in the observed classrooms. Simply to give some sense of the range we encountered, we have selected the two situations that we judged to be most problematic for each of the children we observed, and we analyzed these in terms of the procedure for mapping problem solving, or discrepancy reduction, that we proposed in the *Third Progress Report* (see pp. 40-48 with insert). This procedure was envisioned to be applicable chiefly in settings designed for evaluation, and we would now modify it for this purpose to square with other developments in our thinking and with our findings since a year ago.

(3) Beller operationalized "persistence" in terms of the individual's carrying tasks to their completion. CCEP has coded task or activity com-

pletion or incompletion at the termination of each episode or section of an episode. Often, of course, this signifies that a teacher controlled lesson has been completed, which interested us in relation to questions about the general organization of a child's day. When the pacing and the operations sequences of an episode have been controlled by the pupil, the relation of task or activity completion to autonomy is more direct. "Completion" signifies for us primarily that the subject reaches a recognizable end of a task or that he behaves as if an activity was completed. Completion is not from this standpoint a matter of quality or correctness by the observer's criteria. If the task or activity of a pupil controlled episode has been coded "incomplete," we can determine from the episode or section termination code whether the pupil's abandoning the task was spontaneous or instigated or pressured and by whom. A further explanation of its being incomplete must be sought in the original behavior stream record.

Another index of persistence is the sheer length of time a child engages in a given activity. Again, this is more relevant to autonomy as the child has more control over his activity, providing that the behavior is not simply repetitive or compulsive. CCEP's coding does keep track of the lengths of both main and alternative episodes.

(4) Beller's "just wanting to do something" was operationalized by him as activity vs. passivity. Passivity would be reflected most literally in the passive arrest-task category of our phase vertical variable, which codes the functional relationship of a given phase to adjacent phases in time. This category is invoked when the subject is just waiting, gazing, resting, etc., without his having a focus for alternative activity (which would cause us to invoke instead the active off-task category.) Once again, however, a child's waiting etc. may be the result of his having to

wait for a teacher's direction in a teacher controlled situation, whereas the category is more relevant to autonomy when the child himself has control of his activity. More subtlely related to autonomy is the extent to which a child can and does participate actively in interactions with a teacher, other children, or materials, when his not participating actively might be construed as passive on-task rather than passive off-task, for example in just listening to a teacher. There is a sense of autonomy that emphasizes especially the individual's achievement or mastery of something, as in Friedenberg's statement, "Competence is the foundation of autonomy." (Friedenberg, 1962, p. 60) From this standpoint especially, the child's active responding even under highly prescriptive setting conditions designed to eliminate extraneous stimuli might be construed as more autonomous than passive responding.

(5) Beller's "wanting to do things by oneself" might in certain situations relate inversely to the frequency of a child's asking a teacher for assistance, but the child's asking might in other situations be taken as a positive sign of independence vis-a-vis the teacher. Our coding does distinguish between induced and uninduced occasions of the child's soliciting an interaction with the teacher, but we must look in the original record to interpret specific instances as suggesting dependency or independence. How wanting to do things by oneself would relate to a child's interaction with peers is at least equally problematic. Autonomy is highly associated with integration, both in theory and in research like H.H. Anderson's classic studies of classrooms, so that the presumption of a child's seeking interaction with another would be first on the side of autonomy.

In summary of this discussion of Beller's criteria we can say that each of his five has at least some equivalent in our behavior stream coding, but that every coding judgment must be interpreted in light of the setting conditions obtaining at the time of the behavior coded. This is presumably what Beller's observers did, at least intuitively, in rating the independence of individual children in the classroom.

B. Heteronomy

We have defined heteronomy as the orientation of self to the thought and action of other person . The behavior stream codes CCEP has used/that relate most directly to heteronomy are "teacher-subject response adaptiveness" and "subject-child response adaptiveness," in which adaptiveness refers to an individual's (a) manifestly recognizing the specific thought or action of other, and (b) altering his behavior to accomodate in some way to the thought or action of other. The teacher-subject adaptiveness code has been used only to code the adaptiveness of a teacher's response to an individual (not mass) address of an observed child to a teacher, or to an individual behavior of the child not addressed to the teacher. We have not coded the adaptiveness of child responses to the teacher. In a weak sense of heteronomy, the sense used by Piaget in the *Moral Judgment of the Child*,heteronomy is simply the inverse of autonomy. From this standpoint, all of the child's behavior that conforms to teacher controls -- to teacher initiations, prescriptions, interaction solicits, and so forth -- might be regarded as indicative of heteronomy. We have wanted to invoke a stronger sense of the concept, however, one that does not simply involve conformance of this sort, but that requires adaptation to the particular way that other is conducting his thought and action, mid-stream, so to speak, in one's behavior toward the other. We did not feel we could make this distinction reliably in coding a child's behavior toward a teacher in most of the found settings of the classroom. We have used it to code the observed children's adaptiveness to other children in subject-child interactions, and the adaptiveness of the other children to the observed in these interactions. This coding of the children's adaptiveness to one another has been exploratory, chiefly to identify the subsettings in which to examine the matter further under more controlled conditions. CCEP has already designed a scheme (JURIS, see Fourth Progress Report, pp. 86-105) to study the resolution of conflicts involving the children, but very few of the conflicts we observed were developed enough, either in time or in our reporting of them when they occurred, to warrant our coding with it.

The frequency of different observed children's uninduced solicits of interactions with a teacher, or of their interactions with other children in settings that permit but do not require child-child interaction, can be determined from our coding, but must be interpreted from the observation records in relation to the particulars of each child's situation.

C. Objectivity

The sheer frequency of the observed children's interactions with materials is no index of object orientation in our data, since the children were virtually always expected to interact with materials, when high interaction was not expected with the teacher. A comparison of children's percentages of off-task behavior in relation to high-feedback and low-feedback materials, presented in the analysis below, may come somewhat closer to a definition of objectivity. We can only go beyond this at present by interpreting the quality of individual children's interactions with materials as reported in the observation records. Our extension of objectivity to the quality of individuals' interactions with one another is purely theoretical at this point, though JURIS has been designed to explore it.

D. Integration

After autonomy, integration has concerned CCEP the most in our coding of the children's behavior stream records. In the first place, the coding distinguishes between segmented and integrated academic contents, academic referring to reading, writing, language, arithmetic, science, social studies, art, and music. Academic content is coded "integrated" when there is an explicit or strongly implicit linking of one subject to another, for example, social studies to art, or science to arithmetic. This has been done to enable us to examine the relationships between the structure of the knowledge contents of the children's behavior and the structures of the knowledge processes and of the physical and social contexts of their behavior.

One process code that we have employed whenever an academic content was the subject of the children's behavior we have called "cognitive complexity." It distinguishes between knowledge tasks that involve primarily (i) exchanging information and/or executing routines, (ii) learning skills or concepts, and (iii) applying information and skills to a complex production of something: a construction, a composition, the solution of a problem, etc. These distinctions are somewhat analogous to the first three levels of Bloom's taxonomy of cognitive objectives. Bloom's levels 4, 5, and 6 focus explicitly on processes that may be implicit in his 3 and our iii, at least as we have employed our code. The cognitive complexity code is a crude index of the cognitive differentiation and organization, i.e., the cognitive integration, that is expected in the product of a given academic activity.

Possibly the most difficult question we have faced in the coding of the behavior stream records has been how we might capture the functional organization of the stream of behavior over time. The familiar problem-solving paradigm is concerned with this, but in the manner in which it assumes first the recognition of a problem, then its reduction to elements and their recombination, etc., the paradigm is both too sophisticated and too naive to represent the quality of much thought and action as we observe it in the classroom. Our own scheme for mapping problem solving loses much of its meaning when it is applied to grossly varied learning situations.

CCEP's "vertical" process code attempts to characterize the functional relationships of different behavior stream segments to one another. By "functional" relationships we mean here the contribution of the relationships to the logical and psycho-logical character of the whole, or to the connectedness of a more inclusive behavior stream segment. The code is first of all an index of the functional integration of behavior over time, and secondarily it is an estimate of the potential for the occurrence of problems in different segments of the behavior stream.

Think of phases as the next-to-smallest molar units of the behavior stream -- the social contacts subsuming specific social interactions, the questions subsuming specific operations, the searches subsuming specific actions, etc. -- and consider first the functional relationships of these phases to one another. Our vertical code recognizes the following possibilities: (1) integrated, (2) contingent, (3) algorithmic, (4) repetitive, (5) additive, (6) perspective, (7) directive, (8) provisioning or readying, (9) passive arrest, and (0) active alternative. (The first five are defined and illustrated in the Fourth Progress Report, pp. 129-133.) Integrated, which we first defined as three or more segments (phases for the present discussion) interdependent upon one another, is typically a complex of the types of functional relationships included in categories 2 through 8. A contingent relationship occurs when one segment is likely but not certain to have followed another. Algorithmic is the relationship between two or more segments that are governed by a common algorithm. Repetitive is the more or less exact repetition of an earlier segment by a later segment, while additive simply adds two or more segments that have, at most, a thematic connection. A perspective segment looks back or forward over time to review and anticipate the behavior sequence, and a directive segment explicitly seeks or receives a directive for future behavior. Provisioning or readying is typically transitional between segments. Passive arrest, or waiting, gazing, stretching, resting, does not actively focus on an alternative goal, while active alternative or off-task occurs when a subject shifts from a main episode sequence to an alternative episode sequence. These various relationships have been coded by us at the phase level of behavior , as discussed here, and also at the section and episode levels, to provide altogether a picture of the hierarchical structure of functional relationships in the behavior stream record.

We think of the relationships from (5) additive, back through (1) integrated, as being successively more integrated. We have no empirical way of supporting this claim at present, but it is important to our thinking. Perspective and directive are attempts to integrate behavior, and provisioning and readying putatively facilitate behavior. Different empirically derived patterns of these and the passive arrest and active alternative relationships should contribute to our understanding of how behavior is in fact integrated over time.

Our coding of the functional relationships of behavior stream segments is, like much of the rest of our coding, an idealization of, or an approximation to, what actually transpired. When we code 'algorithmic' for a given 30 second interval, it means that during most of that interval the subject participated in an algorithmic phase of an activity, at least by expected attending to the action of another individual, and possibly (as other codes for the same interval would show) by interaction with the teachers, other children, and/or materials. Our coding an interval as algorithmic does not necessarily mean that the subject is using the algorithm correctly. The behavior stream records sometimes do and sometimes do not tell us whether or not the child's actions were correct by, say, the teacher's criteria. In our analysis of the data, we must look first for structural patterns, particularly relating to passive arrest and active alternative behavior, and then to relate this where we can to the adequacy of the subject's actions.

E. Subsettings.

CCEP's setting observations in the four classrooms of the Fall 1971 pilot-pilot study resulted in our identifying 8 subsettings that seemed, by different percentages in each of the classrooms, to account for most of the time observed. (See Second Progress Report, pp. 23-27 and Table 2 following page 63.) These subsettings were labeled the class, section, partition, cluster, tutorial, contain, group dependent, and group independent. We can now relate these subsettings to the 9 setting clusters that Mayer has built into BORIS to account for all possible time in a classroom setting. (See Chapter 3 , this report.) The two sets of subsettings are listed side by side in the following table.

Mayer's BORIS Setting Clusters Cluster Number	Description	Teacher Pacing	Group Cluster	Product Performance	Second Progress Report Subsettings
1	Tutorial situation	High	1,2	X	Tutorial: teacher present, one or two students, student's task.
2	Teacher directed group lesson	High	3-12	X	Section: teacher present, 10 or fewer students, same task.
3	Teacher directed whole class situation	High	More than 12	X	Class: teacher present, more than 10 students, same task, i.e., same starting and ending points in same concern.
4	Teacher supervised seat-work; identical group task	Medium	X	Same	Assign (Not recognized in 2nd P.R.)
5	Teacher supervised work/play; different tasks	Medium	X	Different	Cluster: teacher present, 10 or fewer students, different tasks in same concern.
6	Teacher assisted cooperative project	Medium	X	Joint	Group dependent: teacher potential as teacher, any number of students, shared task, differentiated functions.
7	Unsupervised activity; identical group task	Low	X	Same	Partition: teacher potential, more than 10 students, same task. Category might be extended to include fewer than 10 students.
8	Unsupervised play/work; different tasks	Low	X	Different	Contain: teacher potential, any number of students, different tasks in same or different concerns.
9	Unsupervised cooperative play/work	Low	X	Joint	Group independent: teacher potential as participant, any number of students, shared task, differentiated functions.

Mayer's BORIS has a number of variables other than the pacing, pupil cluster, and product/performance-relatedness variables used to generate her basic 9 clusters. Of these others, the following have been somewhat modified and included in our coding of the pupil behavior stream observation records: material homogeneity, expectation attend teacher, behavior attend teacher, match attend teacher, expectation address teacher, behavior address teacher, match address teacher, expectation subject-child interaction, match subject-child interaction, expectation materials interaction, expectation materials mode, behavior materials interaction, and match materials interaction. Increasingly specific subsetting descriptions can be obtained by combining the 9 basic subsettings with additional variables. Likewise, various setting conditions can be combined across subsettings, for example, the pacing and options or phase routing categories, to compare the association of different combinations with other variables in the coding. Thus we are able to compare the pupil occupancy times in subsettings as revealed by the analysis of the behavior stream observation records with the pupil occupancy times obtained with BORIS, to compare findings like the off-task percentages obtained by the two systems, and to go through BORIS to relate the involvement data obtained with IRIS to the data of the behavior stream observation records.

From the outset of this study we have spoken of "patterns of autonomy." Our understanding of how to look for these patterns is steadily increasing. It has always been evident that there were many different aspects of autonomy, including control over initiation, over options, pacing, operations sequences, interactions, feedback, and so on. It has also seemed plausible from the start that as an individual's capacity to maintain control over one or another of these aspects varied, either generally or in relation to a particular domain of thought and action, the appropriateness of different mixes of internal and external controls might vary accordingly. Since a year ago, however, a larger frame of reference has been transforming our intuition of these patterns. In this frame we must first put aside the idea of capacity, and then ask simply what are the consequences of different combinations of setting conditions in the learning environment. We have formulated in various ways, and have now begun to examine with the codes introduced in this discussion, the general hypothesis that setting conditions or expectations that are grossly incongruent with respect to the control they allow the individual will be disfunctional for the individual's maintenance of goal-oriented behavior in the setting. Stated in this bald way, the proposition seems self-evident. Translated into the specifics of the knowledge, the social, and the physical conditions of the learning environment, however, it has raised a host of questions. On the one hand, one wants to describe those different settings or subsettings in which different goals seem to be best attained. On the other hand, one must ask what the consequences of incongruent conditions might be, not only for learning in the most accepted sense, but for individuals' development as learners, and in the dynamics of the learning environment itself. The following are a few of the hypotheses we have advanced in the Second and Fourth Progress Reports:

(1) The knowledge, social, and physical orders of effective learning environments /setting or subsettings/ will tend to be complementary; the knowledge, social, and physical orders of ineffective learning environments will tend not to be complementary.

(2) An intervention centered at one or another point along one of the dimensions of a learning environment will tend to influence the centering of behavior along other dimensions of the environment.

(3) The probability of an individual's fulfilling the requirements of a setting depends upon his interpretation of the expectations in the setting, as well as on his performance capabilities and on the feedback available to him in the setting.

> (4) To the extent that the objective possibilities in a setting are at variance with a teacher's expectations for pupils' behavior in the setting, the pupils will orient to the objective possibilities, and the autonomy of the teacher and the pupils will be polarized.

We are not yet in a position to test any of these or others of our hypotheses strictly. However, we have formulated our coding of the children's behavior stream records with these in mind, and the analysis to be reported in this chapter does include questions that relate directly to the hypotheses.

Coding procedure and reliability.

A skeletal child behavior stream coding manual is presented on the following pages.

BEHAVIOR EPISODE STRUCTURE IN SETTINGS--CHILDREN
SKELETAL CODING MANUAL

Program

1 Bank Street
2 Bushell
3 Engelmann-Becker
4 Open

Classroom

1 Bank Street #3
2 Bank Street #1
3 Bank Street #2
4 Bushell #1
5 Bushell #2
6 Bushell #3
7 Engelmann-Becker #1
8 Engelmann-Becker #2
9 Engelmann-Becker #3
10 Open #1
11 Open #2
12 Open #3

Child

1 Girl
2 Boy

Time

0001, 0002, 0011, 0012 0021 . . . . Code observed time only, each 30 seconds

Main episode number

01, 02, 03 . . . . Number consecutively with alternative episodes. Use same number for resumed episodes.

Episode quality

See *4PR*, pp. 108-123

1 Sustained
2 Permeated
3 Arrested
9 Cannot judge

Episode initiation process

See *4PR*, pp. 127-129

0 NA
1 Spontaneous
2 Instigated, direct social
3 Instigated, indirect, object induced
4 Instigated, indirect, object uninduced
5 Instigated, indirect, social induced
6 Instigated, indirect, social uninduced
7 Pressured
9 Cannot judge

Who initiates episode

0 NA
1 Subject
2 Teacher, or other adult except observer
3 Group with teacher
4 Group without teacher
5 Child
6 Object
7 Observer
8 Audiovisual
9 Cannot judge

Options

0 NA
1 Single prescribed
2 Choice of prescribed
3 Prescribed, then open, prescribed
4 Prescribed, then open, open
5 Prescribed and open, prescribed

"Prescribed, then open, prescribed," means that the open options are contingent on completion of prescribed, and subject is now initiating the prescribed.

6 Prescribed and open, open
7 Open
8 Other
9 Unsanctioned

Episode termination process

Same categories as episode initiation process, above

Who terminates

Same categories as who initiates, above

Episode content

10 Combina academic, segmented
11 Reading segmented
12 Writing segmented
13 Language segmented
14 Arithmetic segmented
15 Science segmented
16 Social studies segmented
17 Art, crafts segmented
18 Music segmented
19 Other segmented

20 Combina integrated
21 Reading integrated
22 Writing integrated
23 Language integrated
24 Arithmetic integrated
25 Science integrated
26 Social studies integrated
27 Art, crafts integrated
28 Music integrated
29 Other integrated

30 General social
31 Ritual, announcements
32 Formal sharing or show-and-tell
33 Informal conversation
34 Board and card games
35 Object play (social)
36 Fantasy play
37 Physical conflict (prepotent)

38 Non-physical conflict
39 Punishment or removal from setting

40 General physical
41 Eating
42 Self physical maintenance: rest, elimination, etc.
43 Physical exercise
44 Object manipulation (alone)
45 Vocalization (solo)
46 Motor game

50 Transition
51 Environment maintenance
52 Materials transfer (social or alone)

60 General looking
61 Looking at non-academic
62 Looking at academic non-related
63 Looking at academic related

70 General play time

70 Combines various categories above when episode includes them as sections

90 Cannot judge

Episode vertical, function of episode in relation to other episodes in day

1 Integrated
2 Contingent
3 Algorithmic
4 Repetitive
5 Additive
6 Perspective
7 Directive
8 Provisioning, preparing
9 Waiting, rest, gazing
0 Alternative

See 4PR, pp. 129-133, for 1, 2, 3, 4, 5, and 6.

7 represents seeking and/or receiving directions for future activity.
8 is active transition to, or getting materials ready for, an activity.
9 is passive transition, passive or unfocused arrest of main episode activity.

0 This category not regularly used for episode or section vertical, but it is crucial for phase vertical. In the last case, it indicates time intervals when the subject is engaged in an alternative episode to the exclusion of main eipsode activity, i.e. to indicate active off-task or alternative episode activity, the vertical of which is coded in the alternative coding.

Interruption, resumption

Must be at least two minutes before resumption to be interrupt and not arrest

0 NA
1 Interrupt main
2 Resume interrupted main
3 Interrupt alternative
4 Resume interrupted alternative
5 Resume arrested main
6 Leave observation site
7 Return observation site
8 Resume from earlier day
9 Switch alternative and main

Section options

Same categories as episode options, above

Section initiation process

Same categories as episode initiation process, above

Section who initiates

Same categories as episode who initiates, above

Section termination process

Same categories as episode termination process, above

Section who terminates

Same categories as episode who terminates, above

Section content

Same categories as episode content, above

Section vertical

Same categories as episode vertical, above

Completion of main episode or section

See *4PR*, pp. 133-134

0 NA
1 Task or activity incomplete
2 Task or activity continuous
3 Task or activity complete
9 Cannot judge

Product

0 NA
1 No product
2 Product abandoned
3 Product saved
9 Cannot judge

Alternative episode number

In sequence with main episode number

Alternative quality

Same categories as main episode quality

Alternative initiation process, who initiates, termination process, who terminates

Same categories as main episode initiation and termination

Alternative content

Same categories as main episode content

Alternative vertical

Same categories as episode vertical

Alternative internal routing

0 NA
1 Operations completely prescribed
2 Operations partially prescribed
3 Operations not prescribed
9 Cannot judge

Code how prescribed the stepwise operations sequences are, e.g., (1) looking at a book as teacher turns pages, (2) looking around but having to stay in seat, (3) walking over to look at another child's work.

Alternative cognitive complexity

0 NA
1 Receiving or exchanging information
2 Learning skills or concepts
3 Applying information and skills or concepts in complex production of something
9 Cannot judge

Completion of alternative episode, episode product

Same categories as above for main episode

ANALYSIS OF PHASE EXPECTATIONS AND BEHAVIOR

Phase content

Categories same as above for episode

BORIS and related codes: Apply only to main episodes!

Teacher pacing

1 High, continuous
2 Medium, discontinuous but regular or predictable
3 Low, irregular, occasional

Group cluster

1 1 child
2 2-5 children
3 6-12 children
4 More than 12 children

Code 1 child only when setting deliberately excludes other children, as in tutorial. Code 2-5 when child is allowed to relate to children casually. Code 6-12 or more when child is required to observe norms of group this size. In other words, group norms are most important information in this code.

Material homogeneity

0 NA
1 Same
2 Varied within content area
3 Different
4 Common

Product, performance

0 NA
1 Same
2 Varied
3 Different
4 Shared

Phase routing

Same categories as alternative routing

Phase cognitive complexity

Same categories as alternative cognitive complexity

Phase vertical

Same categories as alternative vertical and episode vertical.

Here, however, one is coding the functional relationships of phases within episodes, rather than episodes within day or sections within episodes.

Expectation teacher attend

1 High
2 Intermittent
3 Low
9 Cannot judge

"Teacher attend" means attending to teacher as information source, thus is not same as pacing or teacher as source of energy regulation.

Behavior attend

1 Does not attend
2 Does attend, induced
3 Does attend, uninduced
9 Cannot judge

Teacher attend coded does attend only when attention is part of main episode activity. Coded does not attend in this column when child's attending is an alternative to his main activity: code watch or interact with teacher in alternative coding.

Match attend

1 Does not match
2 Does match
9 Cannot judge

Solicit teacher interaction

1 Does not solicit
2 Induced solicit
3 Uninduced solicit
9 Cannot judge

3 includes self-initiated interaction with teacher, as well as unsuccessful self-initiated attempt to interact.

Expectation address teacher

1 High
2 Intermittent
3 Low
9 Cannot judge

Behavior address

1 Does not address
2 Mass address
3 Individual address
4 Mass nonverbal
5 Individual nonverbal
9 Cannot judge

Match address

1 Does not match expectation
2 Does match
9 Cannot judge

Teacher response adaptiveness

0 NA
1 No response to individual child address
2 Nonadaptive response
3 Adaptive response
4 Not adapt, no address
5 Adapt, no address
9 Cannot judge

An adaptive response is one that incorporates the child's behavior by recognizing it specifically and building on it in the reply.

A response to a non-address is a response to activity of the child that was not addressed as a communication to the teacher.

Teacher acceptance

0 NA
1 No response to child address
2 Negative response to child's (subject's) address
3 Positive response to subject's address
4 Negative and positive responses to child's address
5 Negative, no address
6 Positive, no address
7 Positive and negative, no address
9 Cannot judge

For negative and positive to be coded in the same time interval, there must be at least two distinct responses to child. Negative defined as non-acceptance, including mere cognitive disagreement.

Expectation child interaction

1 High
2 Intermittent
3 Low
9 Cannot judge

Child address behavior

1 Does not address child
2 Does address child, induced negative
3 Induced positive
4 Uninduced negative
5 Uninduced positive
7 Egocentric speech
8 General address
9 Cannot judge

Positive or negative here does not mean mere cognitive disagreement, but evidence of affective dissonance. The code does not indicate which child was negative, since the affective quality is felt to reside more in the relationship between the two individuals.

Match child address

1 Does not match
2 Does match
9 Cannot judge

Subject response adaptiveness

0 NA
1 Neither subject nor child adaptive
2 Child only adaptive
3 Subject only adaptive
4 Both subject and child adaptive
7 No response by addressee
9 Cannot judge

Expectation materials interaction

1 High
2 Intermittent
3 Low

Expectation materials mode

0 NA
1 Manipulative
2 Symbolic
3 Fantasy
4 Motoric
5 Look or listen
6 Transferring
7 Symbolic and manipulative
8 Symbolic with printed answers
9 Cannot judge

Behavior materials interaction

1 Does not interact with materials
2 Does interact with materials
9 Cannot judge

Match materials interaction

1 Does not match
2 Does match
9 Cannot judge

FOLLOWING CODES APPLY ONLY TO ALTERNATIVE BEHAVIOR: FOR CONTENT ANALYSIS OF ALTERNATIVE EPISODES, ALSO TO RECORD ALTERNATIVE ACTS THAT DID NOT LAST LONG ENOUGH (15 seconds) TO QUALIFY AS ALTERNATIVE EPISODES.

Glances at observer

0 No glances
1 Glances
2 At video

Glances at other or object

0 No glances
1 General (can't discriminate target,
or more than one different)

2 Not academic
3 Academic, not main related
4 Academic, main related

Academic, not main related, means here and below that the content of other's activity or of object is academic but in a different content category from subject's main episode activity at this time. Academic, main related, means that the content is in the same content category, though it is still not the subject's own task as defined by his main behavior episode at the time.

Watch observer

0 No watching
1 Watching

Watch other or object

Same categories as glances at other or object

Interact observer

0 Does not interact
1 Does interact, negative affect
2 Does interact, positive affect
3 Observation object

Interact teacher

0 Does not interact
1 General interact, negative affect
2 Not academic, negative
3 Academic, not main related, negative
4 Academic, main related, negative
5 General interact, positive
6 Not academic, positive
7 Academic, not main related, positive
8 Academic, main related, positive
9 Materials transfer

Interact child

Same categories as interact teacher

Interact object

0 Does not interact
1 General symbolic
2 Not academic, symbolic
3 Academic, not main, symbolic
4 Academic, main related, symbolic
5 General manipulative
6 Not academic, manipulative
7 Academic, not main related, manipulative
8 Academic, main related, manipulative
9 Self as object

Grannis and Jackson spent a year, between December 1970 and January 1972, developing CCEP's system for coding the children's behavior stream observation records. The work of Gump, Barker and Wright, Piaget, and Guilford -- a rather unlikely combination! -- influenced us most in the early months of this task. Mayer's joining CCEP resulted in our adapting to, and to a lesser degree influencing in turn, her Behavior Observation Ratings in Settings. Beginning in July, our preoccupation with what we would code gave way to the problems of how we would code, especially the issues involved in coding the records over regular time intervals without losing the larger, less regular organization of the behavior stream. After writing, with Kaminsky, the BESIS chapter in the *Fourth Progress Report*, we realized that several crucial questions and codes proposed in the *Second Progress Report* had been forgotten along the way, and two more months were required to complete the system in its present form. All of this entailed a great deal of trial coding, so that a third of the records had been worked over in many ways before, in mid-January, we started the final coding from scratch.

Grannis and Jackson each coded five records alone. A third coder, Martha Nordt, achieved reliability after a month of training, and coded three records alone. Three other coders, Susan Beachum, Ronnie Moskowitz, and Daniel White, each worked intensively with one record, in continuous consultation with Jackson and Grannis, who afterwards reviewed the coding systematically from the beginning. Jackson and Grannis reviewed Nordt's and each other's coding as well, before submitting it for keypunching, and regularly consulted with each other about difficult coding decisions.

A reliable coder requires a good 10 hours to code one hour of a behavior stream record with our present system. That fact should underscore the efficiency of directly coded observations, though the behavior stream records contain information without which we could not design a valid and efficient data collection for our future studies.

The coder reliability coefficients between Grannis and Jackson and between Nordt and Jackson are reported on the sample coding sheet that follows this page as Table 2.1.

RELIABILITY:
BESIS (CHILD) CODING SHEET

CCEP 2/21/72

	JACKSON - NORDT 97 intervals	JACKSON - GRANNIS 138 intervals
Program ←		
Classroom ←		
Child ←		
Time		
Main Episode Number		
Episode Quality	93.8	97.2
Episode Initiation	85.6	92.0
who	100.0	92.0
options	85.6	83.7
Episode Termination	100.0	97.1
who	100.0	97.1
Episode Content	100.0	81.9
Episode Vertical	100.0	76.1
Interruption, Resumption	[illegible]	[illegible].1
Section Options	65.7	77.5
Section Initiation	82.4	84.3
who	82.4	84.3
Section Termination	91.8	92.3
who	91.8	92.8
Section Content	81.4	74.6
Section Vertical	65.9	63.0
Complet. of main episode or section	91.8	[illegible]
Product	[illegible]	[illegible]
Alternative Number	78.4	83.3
Alternative Quality	73.8	95.6
Alternative Initiation	87.6	96.4
who	88.6	92.4
Alternative Termination	87.7	97.8
who	89.7	97.8
Alternative Content	86.6	97.1
Alternative Vertical	87.6	96.4
Alt. Internal Routing	73.8	97.1
Alt. Cognitive Complexity	93.8	100.0
Complet. Altern. Episode	[illegible].6	[illegible].5
Alternative Product	[illegible].7	[illegible]
Phase Content ←	97.9	87.6
Pacing ←	100.0	95.6
Group Cluster ←	100.0	[illegible].7
Material Homogeneity ←	77.3	80.4
Product/Performance ←	83.5	67.4
Phase Routing ←	100.0	76.1
Phase Cognitive Complexity ←	81.4	84.0
Phase Vertical	[illegible].2	[illegible]
Expectation Attend ←	100.0	87.8
Behavior Attend	97.9	81.1
Match Attend	97.9	92.8
Solicit T. Interaction	94.8	93.4
Expectation Address ←	78.7	[illegible].8
Behavior Address	90.7	71.3
Match Address	94.8	96.2
T. Response Adaptiveness	92.8	85.4
Teacher Acceptance	92.8	86.2
Expect. Child Interaction ←	67.0	84.0
Child Address Behavior	89.7	74.2
Match	75.9	[illegible].4
Sub. Response Adaptiveness	91.8	93.3
Expect. Materials Interaction ←	73.2	85.5
Expect. Materials Mode ←	96.9	83.3
Behavior Materials Interaction	89.7	81.8
Match	[illegible]	[illegible]
Glances at Observer	100.0	90.[illegible]
Glances at Other or Object	91.8	97.1
Watch Observer	97.9	96.4
Watch Other or Object	87.3	85.8
Interact Observer	100.0	91.3
Interact Teacher	100.0	[illegible]
Interact Child	86.6	79.3
Interact Object	84.7	81.3

Analysis of the data.

Before proceeding to the results, let us discuss briefly the interdependency of observations in our data. For this purpose we will refer to two versions, 'A' and 'B' of the coding record for the first 8 minutes of a behavior stream observation record. (See pages following for coding records 'A' and 'B' and the behavior observation record transcript.)

It will be noticed on 'A' that at the time 0001 the subject has been coded as having inititated spontaneously an episode of transition into the classroom. (The observation record does not include a description of the subject's entry into the classroom, but a video record does show that the children entered on their own while the teacher was occupied with preparing the room. The first section-initiation process and who have been coded not codable.) This episode is terminated at the instigation of the teacher at time 0061. On 'B', the version that was submitted as data, the initiation process (13) and initiation who (14) codes have been propagated throughout the succeeding intervals of the episode. This is also the case with the episode options, episode content, and episode vertical function codes. One reason for this is obvious, viz., our needing to record the data in this way to be able to ask questions like how categories in the phase vertical function column (55) are associated with the categories in episode options. The result, however, is the multiplication of a single observation.

This multiplication of observations is most blatant, we think, in the case of initiation process and initiation who. While it is true that the operational definition of episode options concerns the options available at the time of initiating the episode, typically it continues to be the case that the subject has only one prescribed option, or has contingent or

Version A

BESIS (CHILD) CODING SHEET

CCEP

Program ← Classroom ← Child ← Time	Main Episode Number Episode Quality Episode Initiation who options Episode Termination who Episode Content Episode Vertical Interruption, Resumption	Section Options Section Initiation who Section Termination who Section Content Section Vertical Complet. of main episode or section Product	Alternative Number Alternative Quality Alternative Initiation who Alternative Termination who Alternative Content Alternative Vertical Alt. Internal Routing Alt. Cognitive Complexity Complet. Altern. Episode Alternative Product	Phase Content ← Pacing ← Group Cluster ← Material Homogeneity ← Product/Performance ← Phase Routing ← Phase Cognitive Complexity ← Phase Vertical	Expectation Attend ← Behavior Attend Match Attend Solicit T. Interaction Expectation Address ← Behavior Address Match Address T. Response Adaptiveness Teacher Acceptance Expect. Child Interaction ← Child Address Behavior Match Sub. Response Adaptiveness Expt. Materials Interaction ← Expect. Materials Mode ← Behavior Materials Interaction Match	Glances at Observer Glances at Other or Object Watch Observer Watch Other or Object Interact Observer Interact Teacher Interact Child Interact Object
10210001	0011111 505	799 145		143244223	21212120018291222	
10210202	0011			143244223	21212120018291222	
10210011	0011			143244223	21212120018291222	
10210012	0011			143244223	21212120018291222	
10210021	0011			143244223	21212120018291222	
10210022	0011			143244223	21212120014291222	
10210031	0011	1114 31		143244223	21212120011101222	1
10210032	0011			503223202	21212120021201622	3
10210041	0012	711 115	002211116262021	113223222	21212120021201222	1 1
10210042	0011	1111 31		113223222	21212120025291222	3
10210051	0011	711 142		143244222	21212120015291222	
10210052	0011			143244222	21212120011101222	3
10210061	0011 2250	2214 31		143244222	21212120014211222	
10210062	0031221 305			502411208	22212120028291622	
10210071	0031			502411205	21212120028291622	1
10210072	0031			502411205	2121212002[illegible]	

BESIS (CHILD) CODING SHEET

CCEP

Program / Classroom / Child / Time	Main Episode Number / Episode Quality / Initiation / Termination / Content / Vertical / Interruption	Section Options / Initiation / Termination / Content / Vertical / Complet. / Product	Alternative Number / Quality / Initiation / Termination / Content / Vertical / Routing / Complexity / Complet. / Product	Phase Content / Pacing / Group Cluster / Material Homogeneity / Product/Performance / Phase Routing / Phase Cognitive Complexity / Phase Vertical	Expectation Attend … Match	Glances / Watch / Interact
1021 0072	003/1221 305			5024/1/206	2/2/ [illegible]	
1021 0011	3/1221 305			5024/1/208	2/2/2/2002 829/622/	
1021 0062	003/1221 305			5024/1/205	222/2/2002 829/622	
1021 0061	00/1111/22505	7111 2214231/		1432 44222	2/2/2/2001/421/222	
1021 0052	00/1111 505	711 142		1432 44222	2/2/2/2001/101/222	3
1021 0051	00/1111 505	711 142		1432 44	2/2/2/2001/529/222	
1021 0042	00/1111 505	7111/11531/		1132 3222	2/2/2/200 25 29/222	3
1021 0041	00/2111 505	711 115	0022/1111/16262021/	1132 33222	2/2/2/2002/201/222	1
1021 0032	00/1111 505			5032/43202	2/2/2/2002/201/622	3
1021 0031	00/1111 505	799/1/14531/		1432 44223	2/2/2/2001/101/222	1
1021 0022	00/1111 505	799 145		1432 44223	2/2/2/2001/429/222	
1021 0021	00/1111 505	799 145		1432 44223	2/2/2/2001/829/222	
1021 0212	00/1111 505	799 145		1432 44223	2/2/2/200 829.222	
1021 0011	00/1111 505	799 145		1432 44223	2/2/2/2001/829.222	
1021 0022	00/1111 505	799 145		1432 44223	2/2/4/2001 829.222	
1021 0001	00/1111 505	799 145		1432 44223	2/2/2/2001/829/222	

Program
Classroom
Child
Time
Main Episode Number
Episode Quality
Episode Initiation
who
options
Episode Termination
who
Episode Content
Episode Vertical
Interruption, Resumption
Section Options
Section Initiation
who
Section Termination
who
Section Content
Section Vertical
Complet. of main episode or section
Product
Alternative Number
Alternative Quality
Alternative Initiation
who
Alternative Termination
who
Alternative Content
Alternative Vertical
Alt. Internal Routing
Alt. Cognitive Complexity
Complet. Altern. Episode
Alternative Product
Phase Content
Pacing
Group Cluster
Material Homogeneity
Product/Performance
Phase Routing
Phase Cognitive Complexity
Phase Vertical
Expectation Attend
Behavior Attend
Match Attend
Solicit T. Interaction
Expectation Address
Behavior Address
Match Address
T. Response Attentiveness
Teacher Acceptance
Expect. Child Interaction
Child Address Behavior
Match
Sub. Respect. Attentiveness
Expect. Materials Interaction
Expect. Materials Mode
Behavior Materials Interaction
Match
Glances at Observer
Glances at Other or Object
Watch Observer
Watch Other or Object
Interact Observer
Interact Object
Interact Child
Interact Object

It is about 8:01 and I am starting my observation of Bonnie.

She is a little girl in a jumper with a beige blouse.

I am going to move across the room to get a better vantage point.

She is standing at a table with a group of other little children

There are six other little girls at her table.

She has just leaned down to the girl beside her.

8:03 000

OK I'd better say that I am starting now.

There has been a little commotion.

It is now 8:03, I guess.

At the moment she is looking over the shoulder of a playmate in a lavender dress, not really lavender dress but a blue dress.

She is talking to the girl and they are talking about the work.

Each is holding a pencil and paper in their hands.

She is talking comparing their papers.

Now she is talking with the little girl across the table from her.

001

Now she is talking with the little girl beside her again.

They are counting something on that little girl's paper.

She had been pointing at the little girl's paper with her eraser counting one, two, three, four, five, six, seven.

Now she has sat down in her chair.

002

She is sitting in her chair and there are two little girls bending over her.

They are kind of taking papers away from one another.

Now she is standing and has her knee on her chair.

She is talking to the little girl on the other side of her, I'll call her brown.

Now she simply stood up and is talking to blue again.

Blue is looking at two papers.

Bonnie points at Blue's paper with her eraser.

Points at it and says I told you that was wrong.

Now she points back and forth from one paper to another with the eraser of her pencil.

003

She bends over.

She is counting one to six again.

She just turned and glanced at me. G

Just very quickly.

Walks around in front of me, around the table.

Picks a pocket book up, a little hand bag up from the table, puts it away on the bookcase.

Walks back to the table where a little girl is talking to her.

She says, "Huh" and the little girl doesn't respond.

Now she is leaning over with her elbows on the table, picks a paper off of the table and puts it on the same bookcase.

Scratches her neck and glances at the teacher. G

004

She is watching Sally. W

She is standing at the table and she just glanced at me. G

She is leafing through a book.

She just looked back at her book, now she is glancing up at me again.

As I look toward the center of the room she looks up at the teacher.

She is continuing to turn the pages of the book.

She is watching the teacher. W

The teacher is holding up a group of word card to bunch of boys.

She looks back at the children at her table now.

She leans over her table and says, "Just write your name and spell it."

She continues to leaf through the book she is holding.

A pencil in her hand, leafing through the book of the other hand.

005

Now she walks around her table and sits down.

She is talking to a little girl across the table from her.

She offers her pencil to the little girl acorss the table and insists that she take it.

Brown takes the pencil from Bonnie.

Bonnie now is just leaning down and looking down the table.

Her shoulders are touching the edge of the corder of the table.

Now she is pulling her chair in.

She has her book on her lap.

Leaning against her book, against the edge of the table watching the little girl across the table write her name.

Bonnie glances up at the teacher.

Now she follows the movement of the teacher across the room. W

Bonnie continues to watch.

006

Now she is glancing at two girls across the table from her.

She grasps the hand of Brown across the table and lets go.

The teacher has asked the children to stop what they are doing and gather in a circle.

Bonnie stands up in front of her seat and has her book open on her desk in front of her.

She looks up for a moment.

Now she leans across the table, almost lying across the table.

She takes a pencil and writes on Red's paper.

Red is leaning on the table watching intently at what Bonnie is doing.

Now Bonnie takes Brown's paper and erases something that Brown wrote and writes on it.

She seems to be conducting an activity at this table.

She collected the papers of these two little girls now she puts them inside her book, closes her book.

TRANSITION INTO MOVING CIRCLE

Now the teacher has told them to take their chairs into a circle.

She picks up her chair with her right hand, her book in her left hand.

She places the book on the bookshelf, drags her chair with her to the bookshelf.

She puts her book into the bookshelf and takes her chair, lifts it high over her head, upside down and carries it into what appears to be a circle.

She talks to Brown beside her, she talks to Red.

She turns around very energetically.

007

Then with her face wrinkled up she pushes the table away so that she will be more comfortable in her chair.

The table is behind her, she was leaning over to do this.

Now she's talking to Brown beside her and she glanced up at me momentarily and looked down again. G

She is still holding her pencil.

Now she reaches now and grasps the side of the chair of a little girl who is trying to get into the circle.

Exchanges a few words with her.

White responds.

And Bonnie turns back to her work.

I mean to her seat.

She's now sitting with her pencil in her hand.

008

She said a few words to Brown and glanced up at me. G

Bonnie is examining the end of her pencil right now, examining her eraser.

Fingering it with her right hand.

She just sits up straight in her chair as the teacher addresses one of the children.

She looks from the teacher to the child.

Now she has reached her hands behind her back and is scratching the back of her head with her pencil.

The teacher has just told the children that she doesn't think that they have a very good circle.

009

Bonnie again pushes the chair.

She pushes it and a couple of the other girls help her.

She pushes it back about a foot.

So now there is more room in the circle.

She is leaning forward with her elbows on her knees.

She turns and talks

She just glanced up at me. G

The teacher asks how everyone is this morning.

The teacher says "Is everybody awake."

She says, yes.

Nobody has a stomach ache?, Nobody has a head ache?

No.

open options, throughout the duration of the episode. The concept that has guided us in this is Gump's concept of "pupil occupancy time," viz., the number of time intervals in which a subject occupies a setting or subsetting with certain characteristics.

A similar propagation has been carried out in the data for the relevant columns on the section initiations and the alternative initiations, though in the latter case the example furnished lasted for only 30 seconds and is thus coded terminated on the same line that its initiation is coded.

In the phase columns of the coding, 47-80, we coded all the way across every 30 seconds. Virtually all of these columns too, however, involve some or much interdependency of observations. Consider the subject-child address behavior column (66). If a child is engaged in an ongoing interaction with another child, the observations in adjacent intervals within the interaction are interdependent as parts of the interaction. This situation is hardly unique to our own data. Bellack et al, in their classic verbal interaction study, the Language of the Classroom, found that they could greatly increase their ability to predict the initiator of a teaching cycle by analyzing the initiation of temporally ordered teaching cycles using Markov chains. (See Bellack et al, Chapter 7.)

Somewhere in between the case of episode initiation and the case of subject child address behavior are the various columns that have descending arrows drawn above the column labels. In each of these columns we looked for and coded expectation patterns over intervals, rather than each interval as a separate expectation, trying in this way to get the best fit to sequences that might be shorter than the episode sequence as a whole, but longer than each 30 second interval. Since, for example, the definition of low teacher pacing recognizes the possibility of occasional pacing by the teacher, we would not change the pacing expectation from low to high simply because the teacher paced a subject during a certain interval among others in which she did not pace the subject. We would change it, however, when a sequence of low pacing intervals was succeeded by a sequence of high pacing intervals.

It may well be that a time series analysis, involving one or another form of the Markov chain, would be appropriate for examining the relationships both within and between sequences in different columns. However, we are not yet ready to consider this possibility. We have used the chi square tests to orient us to which pupil occupancy time relationships are more significant than others, and will not claim that the confidence levels reported in the analyses are those that would be reached by more sophisticated tests.

We have tried scrupulously to avoid the interdependency between columns that results from a confusion of variable definitions. Thus, if we coded content as integrated in a given section, we did not just assume that the phase vertical function relationships would be integrated, but coded them additive, repetitive, algorithmic, etc., as they appeared from their internal organization. Our vested interest in doing this validly has been that we were as concerned with identifying incongruous combinations of observations, and the consequences of these, as with establishing our idealizations of patterns of setting conditions and behavior, or of the knowledge, social, and physical dimensions of learning environments. Nonetheless, we know that we have oversimplified many of the judgments we have made, for example with regard to what is integrated or not integrated in either the content or the function relationships of the behavior stream.

Let us stress that our coder reliability involves a high degree of intersubjectivity, especially among the two individuals who have lived with their questions and the data for more than a year. We have made some progress in operationalizing the distinctions for the purpose of training and working with other coders, but we are only now really in a position to ask which codes are most promising and would lend themselves to still more objective definition.

Hundreds of tables have been generated by the questions we have addressed to the data. Using the CROSSTABS system we have obtained marginals and chi squares for each observation variable by Program, Classroom, Gender, and Individual Child. We have also condensed and crossed observation variables for various purposes. Though all of the tables are meaningful to us, and many are significant within the restrictions indicated above, we shall only present the tables that relate most efficiently to the questions developed in the earlier sections of this chapter. A large array of tables is being submitted as an appendix to this chapter, and the tables that are presented here in the text might be considered simply as a guide to this larger array.

Only by studying the tables with his own questions and at his own pace can the reader come to comprehend the complexities of variations in the learning environments. Generalizations like "program similarities and differences" are always obtained at the expense of meaningful variations in the data they subsume. Our strategy is to establish first the most general regularities in the learning environments. One can then ask a variety of questions about specific classrooms and individual teachers and children, examining both the degree to which program prescriptions or expectations regard the different ways the behavior-in-settings regularities apply to individuals, and, conversely, the degree to which programs have taken cognizance of or confused the application of the behavior-in-settings regularities.

We have organized the presentation of the results as follows:

I. PROGRAM SIMILARITIES AND DIFFERENCES ON A SINGLE VARIABLE

  A. Autonomy

  B. Heteronomy

  C. Objectivity

  D. Integration

  E. Subsettings

II. AUTONOMY AS A FUNCTION OF VARIOUS COMBINATIONS OF SETTING CONDITIONS

  A. The significance of off-task behaviors

  B. On-task and off-task behavior under varied pacing and options conditions

  C. On-task and off-task behavior under varied pacing and phase routing conditions

  D. On-task and off-task behavior under varied pacing and materials feedback conditions

  E. On-task and off-task behavior under varied pacing and child-child interaction conditions

III. INTEGRATION AS A FUNCTION OF VARIOUS COMBINATIONS OF SETTING CONDITIONS

  A. Conditions and behavior associated with segmented and integrated contents

  B. Conditions and behavior associated with the integration and orientation of the behavior stream

I. Program similarities and differences on single variables.

In this section we will include the actual tables on classrooms, gender, and individual children only occasionally, to underscore from time to time our contention that breakdowns of the generalizations are necessary and meaningful. It must be stated again that this is a description of programs through what exemplar classrooms have in common, not a sample of all the classrooms in the program. Indeed, the purpose of this part of the analysis especially is as much to validate our coding as it is to discover new facts about programs. To the extent that the descriptions correspond to program rationale, the codes we have used will appear to be valid. Where they suggest facts previously unknown about the programs, it will be necessary to consider whether these also correspond to program rationale, or whether they are unintended consequences of program structure or implementation, or whether they are invalid observations.

A. Autonomy.

1. Episode initiation process. (See Table 2.2) That the percentage of pupil occupancy time in spontaneously initiated episodes was as high in Bank Street (47%) as it was in Open (45%) is interesting. Conversely, one wants to note that the percentage of directly instigated time was as high in Open (50%) as in Bank Street (53%), higher, that is, than the stereotype of Open Classroom might suggest. The percentage of spontaneously initiated time in Engelmann-Becker (31%) especially stems from the way the Engelmann-Becker children spontaneously initiate their take-home independent work episodes following their dismissal by the teachers from the recitation sections. Spontaneous initiations were almost non-existent in Bushell (5%), reflecting the way the teachers required the children to wait until they were judged to be ready to begin a new episode, and reflecting even more

O.C.

Table 2.2

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

                                                    MAIN
ROWS = PROGRAM                          COLUMNS = EPISODE
                                                  INITIATION

                      INST.,      INST.,      INST.,
             SPON-    DIRECT      INDIR.,     INDIR.,     CANNOT        ROW
           TANEOUS    SOCIAL      OBJ. I.     SOC. I.     JUDGE         SUMS  KEY
          |---------|----------|-----------|-----------|-----------|
BANK      |     1100|      1240|           |         21|           |     2361  RAW
STREET    |   46.590|    52.520|           |      0.889|           |  100.000  RPR
          |   41.541|    24.443|           |     21.429|           |   29.943  RPC
          |   13.951|    15.726|           |      0.256|           |   29.943  RPP
          |   13.951|    15.726|           |      0.256|           |   29.943  RPT
          |---------|----------|-----------|-----------|-----------|
BUSHELL   |       88|      1513|         10|           |          3|     1614  RAW
          |    5.452|    93.742|      0.620|           |      0.186|  100.000  RPR
          |    3.323|    29.825|     15.873|           |    100.000|   20.469  RPC
          |    1.116|    19.168|      0.127|           |      0.038|   20.469  RPP
          |    1.116|    19.168|      0.127|           |      0.038|   20.469  RPT
          |---------|----------|-----------|-----------|-----------|
ENGEL-    |      673|      1440|         53|           |           |     2166  RAW
MAN -     |   31.071|    66.482|      2.447|           |           |  100.000  RPR
BECKER    |   25.415|    28.385|     84.127|           |           |   27.470  RPC
          |    8.535|    19.263|      0.672|           |           |   27.470  RPP
          |    8.535|    19.263|      0.672|           |           |   27.470  RPT
          |---------|----------|-----------|-----------|-----------|
OPEN      |      787|       880|           |         77|           |     1744  RAW
          |   45.126|    50.459|           |      4.415|           |  100.000  RPR
          |   29.721|    17.347|           |     78.571|           |   22.118  RPC
          |    9.981|    11.160|           |      0.977|           |   22.118  RPP
          |    9.981|    11.160|           |      0.977|           |   22.118  RPT
          |---------|----------|-----------|-----------|-----------|
COLUMN        2648       5073          63          98           3        7385  RAW
 SUMS       33.583     64.337       0.799       1.243       0.038     100.000  RPR
           100.000    100.000     100.000     100.000     100.000     100.000  RPC
            33.583     64.337       0.799       1.243       0.038     100.000  RPP
            33.583     64.337       0.799       1.243       0.038     100.000  RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .120374 E  04                    (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 12
```

the teacher-pupil deployment patterns which required that all the children change activities at the same time.

The differences in spontaneous initiation between the two Engelmann-Becker classrooms (#1 - 40%, #2 - 19%), between the two Open classrooms (#1 - 54%, #2 - 33%), and to a lesser extent between the two Bank Street classrooms (#1 - 52%, #2 - 39%), all contrast with the slight difference between the Bushell classrooms (#1 - 3%, #2 - 8%). An explanation in terms of program prescriptiveness for teachers might apply to Bushell, but we shall still see later on a large and crucial variation on a related basic setting dimension, pacing, between the two Bushell classrooms. The differences in Engelmann-Becker, Open, and Bank Street might also be attributed to differences in the head teachers' ability and disposition to interpret program rationale. In many of the tables for Bank Street and Open the two head teachers within each program differ systematically from each other, the Bank Street #2 and Open #2 teachers appearing in myriad subtle ways to be more controlling than the Bank Street #1 and Open #1 teachers. The Engelmann-Becker #1 head teacher was more oriented to individual children than the Engelmann-Becker #2 head teacher, and at the same time did not have the sense of timing that the Engelmann-Becker model requires, if one can judge the latter by the effects of the first teacher's use of individual instead of mass response recitation techniques, or one observes simply the awkwardness of the teacher's physical movements in mass recitations, when she accidentally hit one of the subjects several times.

Finally, the differences between the classrooms might be attributed to their adaptations to the particular children we were observing. These adaptations show up most strongly in the Bank Street and Open data on individual children, but all of the children managed in some ways to adapt the subsettings in which we observed them to their own requirements.

```
COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

                                                                Table 2,3

                                              MAIN
ROWS = GENDER                     COLUMNS = EPISODE
                                              INITIATION

                      INST.,      INST.,      INST.,
            SPON-     DIRECT      INDIR.,     INDIR.,     CANNOT         ROW
          TANEOUS     SOCIAL      OBJ. I.     SOC. I.     JUDGE          SUMS   KEY
         |---------|----------|----------|----------|----------|
 GIRL    |     1467|      2287|        30|        77|         3|       3864   RAW
         |   37.966|    59.187|     0.776|     1.993|     0.078|    100.000   RPR
         |   55.400|    45.082|    47.619|    78.571|   100.000|     49.004   RPC
         |   18.605|    29.004|     0.380|     0.977|     0.038|     49.004   RPP
         |   18.605|    29.004|     0.380|     0.977|     0.038|     49.004   RPT
         |---------|----------|----------|----------|----------|
 BOY     |     1181|      2786|        33|        21|          |       4021   RAW
         |   29.371|    69.286|     0.821|     0.522|          |    100.000   RPR
         |   44.600|    54.918|    52.381|    21.429|          |     50.996   RPC
         |   14.978|    35.333|     0.419|     0.266|          |     50.996   RPP
         |   14.978|    35.333|     0.419|     0.266|          |     50.996   RPT
         |---------|----------|----------|----------|----------|
  COL          2648       5073         63         98          3        7885   RAW
  SUMS       33.583     64.337      0.799      1.243      0.038     100.000   RPR
            100.000    100.000    100.000    100.000    100.000     100.000   RPC
             33.583     64.337      0.799      1.243      0.038     100.000   RPP
             33.583     64.337      0.799      1.243      0.038     100.000   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .112034 E  03                       (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 4
```

The within classroom differences in spontaneous initiation were considerable for Bank Street (67%/36%, 51%/29%) and Open (42%/65%, 46%/21%) and negligible for Bushell (4%/2%, 12%/4%) and for Engelmann-Becker (41%/40%, 21%/17%). As the first child in each pair reported is a girl, and the second a boy, one can see that in only one classroom did the boy spend more time than the girl in spontaneously initiated activity. To put it differently, the boys overall spent 29% of their time in directly instigated activity, and the girls 38% of their time, a significant difference. (Table 2.3.) This is just one of many such findings that contribute to a general pattern of the boys receiving somewhat more formal instruction than the girls, especially in the less formally structured classrooms.

What this variability calls for may be an analysis of the binomial distribution of observations (possibly trinomial for some variables), and a test of the null hypothesis that the probability of the occurrence of a given observation is the same across programs. As the hypothesis fails, one would then test successively the degree to which program, classroom, and individual departures from the expectation were significant.

2. Who initiates main episode. Table 2.4 complements Table 2.2. The slight discrepancies between the spontaneous column and the subject column of the two tables respectively result from our having used a combination of spontaneous and group with teacher or group without teacher when a subject participated in a group initiation.

3. Episode termination process. Table 2.5 is not based on pupil occupancy time, but on a condensation of the original frequencies of different kinds of episode termination.

COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

O.C.

Table 2.4

ROWS = PROGRAM COLUMNS = WHO INITIATES MAIN EPISODE

	SUBJECT	TEACHER / OTHER ADULT	GROUP WITH TEACHER	GROUP WITHOUT TEACHER	OBJECT	AUDIO-VISUAL	CANNOT JUDGE	ROW SUMS	KEY
BANK STREET	1035	1241	35				49	2361	RAW
	43.837	52.562	1.525				2.075	100.000	RPR
	41.954	23.967	51.429				94.231	29.939	RPC
	13.125	15.737	0.457				0.621	29.939	RPP
	13.125	15.737	0.457				0.621	29.939	RPT
BUSHELL	68	1506		28	10		3	1615	RAW
	4.211	93.251		1.734	0.619		0.186	100.000	RPR
	2.756	29.085		50.000	100.000		5.769	20.479	RPC
	0.862	19.097		0.355	0.127		0.038	20.479	RPP
	0.862	19.097		0.355	0.127		0.038	20.479	RPT
ENGEL-MAN-BECKER	673	1440				53		2166	RAW
	31.071	66.482				2.447		100.000	RPR
	27.280	27.810				100.000		27.466	RPC
	8.534	18.260				0.672		27.466	RPP
	8.534	18.260				0.672		27.466	RPT
OPEN	691	991	34	28				1744	RAW
	39.622	56.823	1.950	1.606				100.000	RPR
	28.010	19.139	48.571	50.000				22.115	RPC
	8.762	12.567	0.431	0.355				22.115	RPP
	8.762	12.567	0.431	0.355				22.115	RPT
COLUMN SUMS	2467	5178	70	56	10	53	52	7886	RAW
	31.283	65.661	0.888	0.710	0.127	0.672	0.659	100.000	RPR
	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	RPC
	31.283	65.661	0.888	0.710	0.127	0.672	0.659	100.000	RPP
	31.283	65.661	0.888	0.710	0.127	0.672	0.659	100.000	RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE = .123004 E 04 (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 18

Nonetheless, the shift in Engelmann-Becker, from 31% spontaneous initiation to 9% spontaneous termination, seems to correspond to the observed pattern of the children's being interrupted in their take-home work to participate in recitation sections about as much as Bushell children were interrupted to change workbooks or participate in a class.

Let it be noted that we did not once have occasion to use the "pressured" category for episode initiation or termination, pressured involving threat, at the least. This may be attributed both to the exemplary nature of the classrooms and to the circumstance that they were being observed. From the standpoint of the ecology of human behavior, it speaks rather strongly for the coerciveness of the classroom settings we observed!

Let it be noted also that the significance level of Table 2.5 remains at .001, though it has not been propagated, and though we have condensed with the direct instigation column the indirect instigation columns that contain sporadically occupied cells.

4. Main episode options. (See Table 2.6.) The most dramatic new information provided by this table is the 100% of time that Engelmann-Becker pupils occupied subsettings with a single prescription or a choice of prescriptions. In other words, the spontaneous initiations revealed earlier were all initiations of prescribed activity. Bank Street and Open subjects engaged in fully open options episodes for substantial lengths of time, 42% and 42% respectively. In both Bushell classrooms the back-up period choices were written on the board and thus the back-up or "spend" episodes of three subjects were coded as choice of prescribed. A fourth subject brought from home a printing game that was not listed on the board, and this accounted for the only fully open option (4%) observed in Bushell. Choice of prescribed, however, is combined with open in a condensed options

O.C.

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS
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Table 2.5

```
                                                  MAIN EPISODE
ROWS = PROGRAM                        COLUMNS  =  TERMINATION
                                                  CONDENSED

            SPON-      INSTI-      CANNOT            ROW
          TANEOUS      GATED       JUDGE             SUMS   KEY
         |---------|-----------|-----------|
BANK     |       26|         45|          1|          72   RAW
STREET   |   36.111|     62.500|      1.389|     100.000   RPR
         |   41.935|     21.635|    100.000|      26.568   RPC
         |    9.594|     16.605|      0.369|      26.568   RPP
         |    9.594|     16.605|      0.369|      26.568   RPT
         |---------|-----------|-----------|
BUSHELL  |        8|         54|           |          62   RAW
         |   12.903|     87.097|           |     100.000   RPR
         |   12.903|     25.962|           |      22.878   RPC
         |    2.952|     19.925|           |      22.878   RPP
         |    2.952|     19.925|           |      22.878   RPT
         |---------|-----------|-----------|
ENGEL-   |        8|         80|           |          88   RAW
MAN -    |    9.091|     90.909|           |     100.000   RPR
BECKER   |   12.903|     38.462|           |      32.472   RPC
         |    2.952|     29.520|           |      32.472   RPP
         |    2.952|     29.520|           |      32.472   RPT
         |---------|-----------|-----------|
OPEN     |       20|         29|           |          49   RAW
         |   40.816|     59.184|           |     100.000   RPR
         |   32.258|     13.942|           |      18.081   RPC
         |    7.380|     10.701|           |      18.081   RPP
         |    7.380|     10.701|           |      18.081   RPT
         |---------|-----------|-----------|
COLUMN          62         208            1          271   RAW
 SUMS       22.878      76.753        0.369      100.000   RPR
           100.000     100.000      100.000      100.000   RPC
            22.878      76.753        0.369      100.000   RPP
            22.878      76.753        0.369      100.000   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .322128 E  02                      (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 6
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C[redacted]IA[redacted]SR[redacted]ENV[redacted]MEN[redacted]OJE[redacted]
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

O.C.                                                    Table 2.6

                                          MAIN
ROWS = PROGRAM               COLUMNS = EPISODE
                                          OPTIONS

                    CHOICE    PRESC.-   PRESC.-   PRESC.    PRESC.
          SINGLE      OF       OPEN,     OPEN,    & OPEN,   & OPEN,                       UNSANC-        ROW
          PRESC.    PRESC.    PRESC.     OPEN     PRESC.     OPEN      OPEN      OTHER    TIONED        SUMS  KEY
        |---------|---------|---------|---------|---------|---------|---------|---------|---------|
BANK    |     1061|      189|         |         |        4|       53|     1001|         |       49|     2357  RAW
STREET  |   45.015|    8.019|         |         |    0.170|    2.249|   42.469|         |    2.079|  100.000  RPR
        |   19.895|   35.593|         |         |  100.000|  100.000|   55.642|         |   98.000|   29.911  RPC
        |   13.464|    2.398|         |         |    0.051|    0.673|   12.703|         |    0.622|   29.911  RPP
        |   13.464|    2.398|         |         |    0.051|    0.673|   12.703|         |    0.622|   29.911  RPT
        |---------|---------|---------|---------|---------|---------|---------|---------|---------|
BUSHELL |     1410|      139|         |         |         |         |       60|        5|        1|     1615  RAW
        |   87.307|    8.607|         |         |         |         |    3.715|    0.310|    0.062|  100.000  RPR
        |   26.439|   26.177|         |         |         |         |    3.335|  100.000|    2.000|   20.495  RPC
        |   17.893|    1.764|         |         |         |         |    0.761|    0.063|    0.013|   20.495  RPP
        |   17.893|    1.764|         |         |         |         |    0.761|    0.063|    0.013|   20.495  RPT
        |---------|---------|---------|---------|---------|---------|---------|---------|---------|
ENGEL-  |     1992|      174|         |         |         |         |         |         |         |     2166  RAW
MAN -   |   91.967|    8.033|         |         |         |         |         |         |         |  100.000  RPR
BECKER  |   37.352|   32.768|         |         |         |         |         |         |         |   27.487  RPC
        |   25.279|    2.208|         |         |         |         |         |         |         |   27.487  RPP
        |   25.279|    2.208|         |         |         |         |         |         |         |   27.487  RPT
        |---------|---------|---------|---------|---------|---------|---------|---------|---------|
OPEN    |      870|       29|       67|       38|         |         |      738|         |         |     1742  RAW
        |   49.943|    1.665|    3.846|    2.181|         |         |   42.365|         |         |  100.000  RPR
        |   16.314|    5.461|  100.000|  100.000|         |         |   41.023|         |         |   22.107  RPC
        |   11.041|    0.368|    0.850|    0.482|         |         |    9.365|         |         |   22.107  RPP
        |   11.041|    0.368|    0.850|    0.482|         |         |    9.365|         |         |   22.107  RPT
        |---------|---------|---------|---------|---------|---------|---------|---------|---------|
COLUMN        5333       531        67        38         4        53      1799         5        50      7880  RAW
 SUMS       67.678     6.739     0.850     0.482     0.051     0.673    22.830     0.063     0.635   100.000  RPR
           100.000   100.000   100.000   100.000   100.000   100.000   100.000   100.000   100.000   100.000  RPC
            67.678     6.739     0.850     0.482     0.051     0.673    22.830     0.063     0.635   100.000  RPP
            67.678     6.739     0.850     0.482     0.051     0.673    22.830     0.063     0.635   100.000  RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .270255 E  04                        (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 24
```

code we have used to explore various questions reported later in the chapter. (See Table 2.7.)

The two Open classrooms varied in the time spent in open options (#1 - 48%, #2 - 34%), and the two Bank Street classrooms varied even more (#1 - 60%, #2 - 16%). Thus, the Open #2 and Bank Street #2 teachers continue to be the more controlling within their programs, a trend that will continue in many tables. The analysis by individual children shows drastic differences in the options available to the girl and the boy in these two classrooms. Reading only the open options column of our table (not reproduced) for individual children, the result is Bank Street (59%/61% and 31%/4%), Bushell (0%/15% and 0%/0%), Engelmann-Becker (0%/0% and 0%/0%), and Open (44%/52% and 69%/4%).

5. Main episode options condensed by First Priority and Second Priority episode content. One wants to know what content was prescribed and what content was selected by the children in open options. We have condensed the content observations reading, writing (including spelling), language, and arithmetic as First Priority Content, and science, social studies, art, music, show-and-tell, informal conversation, board and card games, object play (social), fantasy play, object manipulation (alone), and motor game as Second Priority Content. (Similar condensations of content were worked out first by Shaw and Furman and by Kaminsky, for the analyses reported in their chapters.) We have condensed the options observations single prescribed, doing prescribed of prescribed-then open, and doing prescribed of prescribed-and open as Prescribed, and choice of prescribed, doing open of prescribed-then open, doing open of prescribed-and open, and fully open, as Open. Table 2.8 shows that prescribed options were more likely to have first priority content, and open options more likely to have

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

O.C.                                                        Table 2.7

                                               MAIN EPISODE
ROWS = PROGRAM                       COLUMNS = OPTIONS
                                              (CONDENSED)

                         PRE-
             OPEN      SCRIBED           ROW
            CHOICE     CHOICE           SUMS   KEY
         |---------|----------|
BANK     |     1111|       955|         2066   RAW
STREET   |   53.775|    46.225|      100.000   RPR
         |   50.615|    19.462|       29.090   RPC
         |   15.643|    13.447|       29.090   RPP
         |   15.643|    13.447|       29.090   RPT
         |---------|----------|
BUSHELL  |      199|      1254|         1453   RAW
         |   13.696|    86.304|      100.000   RPR
         |    9.066|    25.555|       20.459   RPC
         |    2.802|    17.657|       20.459   RPP
         |    2.802|    17.657|       20.459   RPT
         |---------|----------|
ENGEL-   |      162|      1839|         2001   RAW
MAN -    |    8.096|    91.904|      100.000   RPR
BECKER   |    7.380|    37.477|       28.175   RPC
         |    2.281|    25.894|       28.175   RPP
         |    2.281|    25.894|       28.175   RPT
         |---------|----------|
OPEN     |      723|       859|         1582   RAW
         |   45.702|    54.298|      100.000   RPR
         |   32.938|    17.506|       22.275   RPC
         |   10.180|    12.095|       22.275   RPP
         |   10.180|    12.095|       22.275   RPT
         |---------|----------|
COLUMN         2195       4907          7102   RAW
 SUMS        30.907     69.093       100.000   RPR
            100.000    100.000       100.000   RPC
             30.907     69.093       100.000   RPP
             30.907     69.093       100.000   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .135725 E  04                        (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 3
```

second priority content, when observations for all programs are combined. When the relationship is analyzed by classroom, however, the open options side of the relationship turns out to hold only in the three classrooms, Bank Street #1 and Open #1 and #2, in which the largest percentages of open time were observed. In the five classrooms in which the percentages of open time were substantially less, second priority content was involved less often in this open time than first priority content. The relationship is independent of the number of minutes in the classroom days observed, Bank Street #1 having the longest of all the days and Open #2 the shortest. We shall have more to say on first and second priority content in Sections II and IV below.

6. Section options. Even within a prescribed options episode a child might have choices over, at least, the order of sections and possibly over section contents as well. Conversely, within an open options episode, the section options might be prescribed. Table 2.9 shows the section options in the approximately 75% of the total observation time that we were able to analyze into sections. The open section options percentages for the four programs, Bank Street (11%), Bushell (1%), Engelmann-Becker (0%), and Open (16%), are consistent with the options-content priorities relationships described above. The 19% choice of prescribed obtained for Engelmann-Becker reflects the fact that Engelmann-Becker children can choose the order in which they do the worksheets in a take-home independent study episode.

7. Section initiation process. The Bushell children's having far more control over section initiation than the children of the three other programs, as shown in Table 2.10, reflects the fact that they spent far less time in recitation sections or whole class subsettings than the

O.C.

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COLUMRIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

                        Table 2.8

              OVERALL = ALL
                        PUPILS

          MAIN                              MAIN EPISODE
ROWS = EPISODE              COLUMNS = OPTIONS
          CONTENT                           (CONDENSED)

                          PRE-
            OPEN        SCRIBED           ROW
           CHOICE       CHOICE           SUMS   KEY
        |----------|----------|
FIRST   |       854|      3574|       4428   RAW
PRIOR-  |    19.286|    80.714|    100.000   RPR
ITY     |    42.828|    75.385|     65.746   RPC
        |    12.680|    53.066|     65.746   RPP
        |    12.680|    53.066|     65.746   RPT
        |----------|----------|
SECOND  |      1140|      1167|       2307   RAW
PRIOR-  |    49.415|    50.585|    100.000   RPR
ITY     |    57.172|    24.615|     34.254   RPC
        |    16.927|    17.327|     34.254   RPP
        |    16.927|    17.327|     34.254   RPT
        |----------|----------|
COLUMN        1994        4741        6735   RAW
 SUMS       29.607      70.393     100.000   RPR
           100.000     100.000     100.000   RPC
            29.607      70.393     100.000   RPP
            29.607      70.393     100.000   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .660619 E  03                    (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 1

YATES CORRECTED CHI SQUARE =  .659175 E  03   (SIGNIFICANT AT .001 LEVEL)
LAMBDA-A =  .123971
   LAMBDA-A NORMALLY DISTRIBUTED, MEAN = POPULATION LAMBDA-A,
                                     STD DEV =  .181165 E -01
                                     .95 CONFIDENCE INTERVAL = ( .834622 E -01,  .159479      )
LAMBDA-B = 0.                       (CONFIDENCE INTERVAL IS 0 ALONE)
LAMBDA   =  .664961 E -01
   LAMBDA   NORMALLY DISTRIBUTED, MEAN = POPULATION LAMBDA  ,
                                     STD DEV =  .121310 E -03
                                     .95 CONFIDENCE INTERVAL = ( .662583 E -01,  .667338 E -01)

***** TABLE TOTALS *****
    RAW=        6735
```

COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

Table 2.9

ROWS = PROGRAM COLUMNS = SECTION OPTIONS

	SINGLE PRESC.	CHOICE OF PRESC.	PRESC.- OPEN, PRESC.	PRESC.- OPEN, OPEN	PRESC. & OPEN, PRESC.	PRESC. & OPEN, OPEN	OPEN	OTHER	ROW SUMS	KEY
BANK STREET	659	39			2	4	84		788	RAW
	83.629	4.949			0.254	0.508	10.660		100.000	RPR
	33.249	15.116			100.000	100.000	51.220		31.916	RPC
	26.691	1.580			0.081	0.162	3.402		31.916	RPP
	26.691	1.580			0.081	0.162	3.402		31.916	RPT
BUSHELL	313	28	10	47			3	1	402	RAW
	77.861	6.965	2.488	11.692			0.746	0.249	100.000	RPR
	15.792	10.853	100.000	100.000			1.829	50.000	16.282	RPC
	12.677	1.134	0.405	1.904			0.122	0.041	16.282	RPP
	12.677	1.134	0.405	1.904			0.122	0.041	16.282	RPT
ENGEL- MAN - BECKER	652	159					4	1	816	RAW
	79.902	19.485					0.490	0.123	100.000	RPR
	32.896	61.628					2.439	50.000	33.050	RPC
	26.407	6.440					0.162	0.041	33.050	RPP
	26.407	6.440					0.162	0.041	33.050	RPT
OPEN	358	32					73		463	RAW
	77.322	6.911					15.767		100.000	RPR
	18.063	12.403					44.512		18.753	RPC
	14.500	1.296					2.957		18.753	RPP
	14.500	1.296					2.957		18.753	RPT
COLUMN SUMS	1982	258	10	47	2	4	164	2	2469	RAW
	80.275	10.450	0.405	1.904	0.081	0.162	6.642	0.081	100.000	RPR
	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	RPC
	80.275	10.450	0.405	1.904	0.081	0.162	6.642	0.081	100.000	RPP
	80.275	10.450	0.405	1.904	0.081	0.162	6.642	0.081	100.000	RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE = .551881 E 03 (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 21

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

                                                          Table 2.10

ROWS = PROGRAM                  COLUMNS = SECTION INITIATION

                       INST.,     INST.,     INST.,     INST.,
             SPON-     DIRECT     INDIR.,    INDIR.,    INDIR.,    PRES-      CANNOT        ROW
            TANEOUS    SOCIAL     OBJ. I.    SOC. I.    SOC. U.    SURED      JUDGE         SUMS   KEY
         |---------|----------|----------|----------|----------|----------|----------|
BANK     |     286|       526|         1|         1|          |          |         2|      816   RAW
STREET   |  35.049|    64.461|     0.123|     0.123|          |          |     0.245|  100.000   RPR
         |  30.523|    32.610|     9.091|     3.846|          |          |    15.385|   31.312   RPC
         |  10.975|    20.184|     0.038|     0.038|          |          |     0.077|   31.312   RPP
         |  10.975|    20.184|     0.038|     0.038|          |          |     0.077|   31.312   RPT
         |---------|----------|----------|----------|----------|----------|----------|
BUSHELL  |     293|       166|          |         6|         5|          |         1|      471   RAW
         |  62.208|    35.244|          |     1.274|     1.062|          |     0.212|  100.000   RPR
         |  31.270|    10.291|          |    23.077|   100.000|          |     7.692|   18.074   RPC
         |  11.243|     6.370|          |     0.230|     0.192|          |     0.038|   18.074   RPP
         |  11.243|     6.370|          |     0.230|     0.192|          |     0.038|   18.074   RPT
         |---------|----------|----------|----------|----------|----------|----------|
ENGEL-   |     245|       585|         4|         3|          |         1|          |      838   RAW
MAN -    |  29.236|    69.809|     0.477|     0.358|          |     0.119|          |  100.000   RPR
BECKER   |  26.147|    36.268|    36.364|    11.538|          |   100.000|          |   32.157   RPC
         |   9.401|    22.448|     0.153|     0.115|          |     0.038|          |   32.157   RPP
         |   9.401|    22.448|     0.153|     0.115|          |     0.038|          |   32.157   RPT
         |---------|----------|----------|----------|----------|----------|----------|
OPEN     |     113|       336|         6|        16|          |          |        10|      481   RAW
         |  23.493|    69.854|     1.247|     3.326|          |          |     2.079|  100.000   RPR
         |  12.060|    20.831|    54.545|    61.538|          |          |    76.923|   18.457   RPC
         |   4.336|    12.893|     0.230|     0.614|          |          |     0.384|   18.457   RPP
         |   4.336|    12.893|     0.230|     0.614|          |          |     0.384|   18.457   RPT
         |---------|----------|----------|----------|----------|----------|----------|
COLUMN         937       1613         11         26          5          1         13       2606   RAW
 SUMS       35.955     61.896      0.422      0.998      0.192      0.038      0.499    100.000   RPR
           100.000    100.000    100.000    100.000    100.000    100.000    100.000    100.000   RPC
            35.955     61.896      0.422      0.998      0.192      0.038      0.499    100.000   RPP
            35.955     61.896      0.422      0.998      0.192      0.038      0.499    100.000   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =   .292697 E  03                    (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 18
```

other children. They thus worked more at their own pace, as the teacher pacing data will show directly. Section initiation in Bushell often meant, operationally, turning a page, at least for the coders, and possibly for the children and their teachers themselves, to judge from the frequency with which children counted pages finished or pages to go when they had completed a page, or how tokens were dispensed in both classrooms on the basis of pages completed. Of course, section initiation sometimes meant turning a page in any of the classrooms, but in independent activity other than with workbooks or worksheets the initiation process was less likely to be this stereotyped.

8. Teacher pacing. Teacher pacing, or the degree to which the teacher regulates a subject's energy expenditure or work rate (literally, from a physical standpoint), has assumed increasing significance for us as our analysis of patterns in the data proceeds. "Off task" behavior, defined as the sum of the time spent waiting or resting and the time spent in sustained alternative activity, occurs in 9% of high teacher paced time, 19% of medium teacher paced time, and 20% of low teacher paced time, for all of the children combined. When only prescribed activity is involved, the off-task proportions are 9%, 21%, and 28% in the same order. Whatever the value of the off-task behavior (this is discussed in II), pacing seems to make a difference to the individual's control over his activity, especially in combination with options, or with whatever other variables that might be confounded with options. We shall analyze various aspects of the matter in Section II below. Table 2.11 shows (a) strong polarization between high and low teacher pacing in each of three programs, Bank Street, Engelmann-Becker, and Open, so that it is of considerable interest to ask how high and low teacher pacing are employed in these three programs. The table shows Bushell, alone,

Table 2.11

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

ROWS = PROGRAM                  COLUMNS = TEACHER PACING

                                                          ROW
             HIGH      MEDIUM        LOW                 SUMS   KEY
         |---------|-----------|-----------|
BANK     |      996|        251|       1113|             2360   RAW
STREET   |   42.203|     10.636|     47.161|          100.000   RPR
         |   31.047|     19.533|     32.822|           29.934   RPC
         |   12.633|      3.184|     14.117|           29.934   RPP
         |   12.633|      3.184|     14.117|           29.934   RPT
         |---------|-----------|-----------|
BUSHELL  |      340|        721|        553|             1614   RAW
         |   21.066|     44.672|     34.263|          100.000   RPR
         |   10.599|     56.109|     16.3[illegible]|           20.472   RPC
         |    4.313|      9.145|      7.014|           20.472   RPP
         |    4.313|      9.145|      7.014|           20.472   RPT
         |---------|-----------|-----------|
ENGEL-   |     1243|         96|        827|             2166   RAW
MAN -    |   57.387|      4.432|     38.181|          100.000.  RPR
BECKER   |   38.747|      7.471|     24.3[illegible]|           27.473   RPC
         |   15.765|      1.218|     10.4[illegible]|           27.473   RPP
         |   15.765|      1.218|     [illegible]|           27.473   RPT
         |---------|-----------|-----------|
OPEN     |      629|        217|        898|             1744   RAW
         |   36.067|     12.443|     51.4[illegible]|          100.000   RPR
         |   19.607|     16.887|     26.482|           22.121   RPC
         |    7.972|      2.752|     11.[illegible]|           22.121   RPP
         |    7.978|      2.752|     11.3[illegible]|           22.121   RPT
         |---------|-----------|-----------|
COLUMN       3208        1285        3391                7884   RAW
 SUMS      40.690      16.299      43.011             100.000   RPR
          100.000     100.000     100.000             100.000   RPC
           40.690      16.299      43.011             100.000   RPP
           40.690      16.299      43.011             100.000   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .143733 E  04                   (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 6
```

using medium teacher pacing the most, as indeed a behavior modification model would seem to require. (The Bushell program is officially known as "behavior analysis," apparently to avoid unwanted connotations of the term 'modification' to parents.) Only one other child, in Open #1, spent a lesser percentage of time in high teacher paced activity than any of the four Bushell children. However, the 45% average of medium pacing time for Bushell masks a drastic difference between the two Bushell classrooms. The proportions of time spent in high, medium, and low pacing respectively were 27%, 16%, and 57% in Bushell #1, and 15%, 73%, and 12% in Bushell #2. This was the simple consequence of the different patterns of movement of the head teachers in the two classrooms, which the aides in each classroom tended to imitate. In Bushell #1, the teacher tended to move around a table just once during a 20 or 30 minute period, stopping once with each child for what often amounted to a tutorial. The direction of the head teacher's movement was constant, and she rarely took notice of the other children at the same table when she was working with a given child. These children reciprocally took little notice of her. In Bushell #2, with children seated quite similarly at four content-centered tables, the head teacher and the aides tended to move frequently and less consecutively from child to child. It happens that Bushell #1 was the classroom in which the teacher felt we were intruding, not so much because of our observation technique as because the teacher had not been properly consulted about the observation before it commenced. The observers noticed particularly high proportions of off-task behavior on the part of the two subjects in this classroom, and several times anguished about the intrusiveness of the observation in their recording of the children's behavior streams. As we remarked once before, however, the teacher told us following the observation that the behavior of the one child who was the most off-task of these two, and indeed of all the children in the study, was consistent with his behavior most of the time. Moreover, as the analysis in Section II will indicate, this same child was observed to be highly on-task on certain occasions that suggest a different interpretation of his off-task behavior than our intrusiveness. In any event, we must assume from our observations last year in three other Bushell classrooms (including the pilot-pilot observation), and from the BORIS observations this year (see Chapter 3), that medium pacing is the preferred mode in Bushell. Thus we are obliged to examine the consequences of Bushell #1 classroom's departure from this mode.

There was virtually no difference in the amount of time the children in the two Bushell classrooms spent actually addressing or speaking with a teacher: 10% in Bushell #1 and 11% in Bushell #2. However, time spent in tutorial was 3.1% in #1 and 1.6% in #2, which shows somewhat more concentration of the pupil-teacher interaction in #1, though it also suggests that the two children observed in #1 might have received less tutorial than other children in the classroom that day.

9. Phase routing. Just as pacing is the moment-to-moment complement of initiation, so phase routing is the complement of options. Table 2.12 confirms what one would generally expect for the four programs observed, with the highest prescription of operations sequences in Bushell and Engelmann-Becker, and the lowest prescription in Open. Once again, however, there were striking differences between classrooms in Bank Street and Open, with Bank Street #1 (39%, 49%, 12%) and Open #1 (28%, 30%, 42%) being less prescriptive than Bank Street #2 (65%, 31%, 4%) and Open #2 (37%, 58%, 5%).

The differences were negligible within Bushell and Engelmann-Becker.

10. Completion of main episode or section. Table 2.13 shows more task incompletion in Open than in the other three programs. This statistic takes no account of the length or the nature of the tasks, and we will have to examine specific cases before knowing what the finding means. In one of the Open classrooms, a child raced through a choice-of-prescribed ceramics project to be able to build Lincoln logs with his friend, received the teacher's permission to get out the logs, did so, was then told by the teacher that he should first write an entry in a daily log or diary, copied an entry from a previous day, was told that he should write about the present day and was asked what had happened that day to write about, responded about what he liked, was told he should start with what he did, stared at his diary for a moment and then returned to the ceramics activity to look at his product, was directed to get back to his writing, was then closely supervised and assisted by the teacher as he slowly wrote two sentences about the day, was allowed finally to play with the Lincoln logs, worked steadily with his friend to complete two buildings, and then had to tear the project down to make room for a class dramatics lesson. At the very beginning of the day, this same child had abandoned a balance beam activity he had initiated and selected for himself, and had completed a lengthy arithmetic assignment that was then prescribed for him by the teacher. It is apparent that the articulation of the child's capacity with the classroom expectations was poor, though beyond this it would be hazardous to generalize about the child or the teacher.

The average lengths of main episodes in the four programs were 17 minutes for Bank Street, 12 minutes for Bushell, 14 minutes for Engelmann-Becker and 18 minutes for Open. We think this has something to do with

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

O.C.                                                                Table 2.12

                                                     PHASE
ROWS = PROGRAM                          COLUMNS = INTERNAL
                                                   ROUTING

              OPER.       OPER.       OPER.
              COMPL.      PARTL.       NOT                     ROW
              PRESCR.     PRESCR.     PRESCR.      N/A         SUMS    KEY
            |----------|----------|----------|----------|
BANK        |     1169|       987|       205|          |       2361   RAW
STREET      |   49.513|    41.804|     8.683|          |    100.000   RPR
            |   26.580|    36.154|    27.081|          |     29.939   RPC
            |   14.824|    12.516|     2.600|          |     29.939   RPP
            |   14.824|    12.516|     2.600|          |     29.939   RPT
            |----------|----------|----------|----------|
BUSHELL     |     1146|       409|        59|         1|       1615   RAW
            |   70.960|    25.325|     3.653|     0.062|    100.000   RPR
            |   26.057|    14.982|     7.794|   100.000|     20.479   RPC
            |   14.532|     5.186|     0.748|     0.013|     20.479   RPP
            |   14.532|     5.186|     0.748|     0.013|     20.479   RPT
            |----------|----------|----------|----------|
ENGFL-      |     1530|       604|        32|          |       2166   RAW
MAN -       |   70.637|    27.886|     1.477|          |    100.000   RPR
BECKER      |   34.789|    22.125|     4.227|          |     27.466   RPC
            |   19.401|     7.659|     0.406|          |     27.466   RPP
            |   19.401|     7.659|     0.406|          |     27.466   RPT
            |----------|----------|----------|----------|
OPEN        |      553|       730|       461|          |       1744   RAW
            |   31.709|    41.858|    26.433|          |    100.000   RPR
            |   12.574|    26.740|    60.898|          |     22.115   RPC
            |    7.012|     9.257|     5.846|          |     22.115   RPP
            |    7.012|     9.257|     5.846|          |     22.115   RPT
            |----------|----------|----------|----------|
COLUMN           4398        2730         757          1        7886   RAW
 SUMS          55.770      34.618       9.599      0.013     100.000   RPR
              100.000     100.000     100.000    100.000     100.000   RPC
               55.770      34.618       9.599      0.013     100.000   RPP
               55.770      34.618       9.599      0.013     100.000   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .120969 E  04                       (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 9
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the degree of control the children had over their activities in these classrooms, though the finding is only suggestive at this point. The average lengths of alternative episodes in the four programs were 3 minutes for Bank Street, 1½ minutes for Bushell, 2 minutes for Engelmann-Becker, and 3 minutes for Open. Thus the main and alternative episode lengths correlate by program, adding some weight to our supposition about control. This is particularly interesting in view of the fact that Bushell children actually spent the most time in alternative behavior, and Bank Street children the least, so that one can say that the alternative activity was sustained longer at the same time that it occurred less frequently in Bank Street compared with Bushell. Engelmann-Becker and Open both fall in the middle on this comparison.

The relatively high proportion (11%) of occasions in Bushell when main episode task or activity was coded "continuous" rather than complete or incomplete reflects the fact that programmed workbooks were used in Bushell. When a child's activity in a workbook was halted on mid-page by an instigated termination, it was coded continuous to recognize the expectation that the child would continue on a later day.

(See Table 2.14.)

11. Passive arrest, or waiting, resting, or gazing. / In our discussion of Beller's activity vs. passivity (p.2-13) above, we pointed out that the amount of time recorded in the passive arrest category of the phase function variable might be taken as a crude index of passivity. The proportions of time coded passive arrest were Bank Street 8%, Bushell 8%, Engelmann-Becker 4% and Open 4%. Four children seem to stand out from the others. Whereas twelve of the children range between 4% and 7% time spent in passive arrest, Bank Street #1 boy spent 13%, Bushell #2 boy spent 13%, Engelmann-Becker #1 girl spent 0%, and Open #1 boy spent 1% in passive

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS
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Table 2.13

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                                             COMPLETION
ROWS = PROGRAM                   COLUMNS = OF MAIN EPISODE
                                           OR SECTION

            TASK OR   TASK OR   TASK OR
            ACTIV.    ACTIV.    ACTIV.    CANNOT         ROW
            INCOMP.   CONTIN.   COMPLET    JUDGE         SUMS   KEY
          |---------|---------|---------|---------|
BANK      |       10|        6|      138|         |        154   RAW
STREET    |    6.494|    3.896|   89.610|         |    100.000   RPR
          |   22.222|   21.429|   25.794|         |     25.287   RPC
          |    1.642|    0.985|   22.660|         |     25.287   RPP
          |    1.642|    0.985|   22.660|         |     25.287   RPT
          |---------|---------|---------|---------|
BUSHELL   |       10|       15|      113|        1|        139   RAW
          |    7.194|   10.791|   81.295|    0.719|    100.000   RPR
          |   22.222|   53.571|   21.121|  100.000|     22.824   RPC
          |    1.642|    2.463|   18.555|    0.164|     22.824   RPP
          |    1.642|    2.463|   18.555|    0.164|     22.824   RPT
          |---------|---------|---------|---------|
ENGEL-    |       11|        4|      195|         |        210   RAW
MAN -     |    5.238|    1.905|   92.857|         |    100.000   RPR
BECKER    |   24.444|   14.286|   36.449|         |     34.483   RPC
          |    1.806|    0.657|   32.020|         |     34.483   RPP
          |    1.806|    0.657|   32.020|         |     34.483   RPT
          |---------|---------|---------|---------|
OPEN      |       14|        3|       89|         |        106   RAW
          |   13.208|    2.830|   83.962|         |    100.000   RPR
          |   31.111|   10.714|   16.636|         |     17.406   RPC
          |    2.299|    0.493|   14.614|         |     17.406   RPP
          |    2.299|    0.493|   14.614|         |     17.406   RPT
          |---------|---------|---------|---------|
COLUMN          45        28       535         1         609   RAW
 SUMS        7.389     4.598    87.849     0.164     100.000   RPR
           100.000   100.000   100.000   100.000     100.000   RPC
             7.389     4.598    87.849     0.164     100.000   RPP
             7.389     4.598    87.849     0.164     100.000   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .270380 E  02                    (SIGNIFICANT AT .011 LEVEL)
DEGREES OF FREEDOM = 9
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arrest. When these four children are removed from the calculation, the average passive arrest times for the remaining children in the programs are Bank Street 6%, Bushell 7%, Engelmann-Becker 6% and Open 5%. Let us comment first on the statistics for the four individual children, and then on the program statistics.

The behavior stream record for Bank Street #1 boy shows the teacher asking him early in the morning if he feels well, and the boy responding "yes". The teacher was not aware that this was the boy being observed until we told her so at the end of the day, at which time she said she thought he was sick, or that something was wrong, because the boy was normally very active in class. This circumstance, such as it was, seems to have interacted with the fact that the child spent much of the day in low-pressure subsettings, particularly one definitionally medium-paced subsetting where a teacher was present to give assistance on a project, but did not overtly demand or reinforce for productivity, and a low-paced subsetting where a teacher was only occasionally present.

Bushell #2 boy spent 70% of his day in medium-paced subsettings. However, his situation was somewhat the opposite of Bank Street #1 boy's, in that the Bushell boy was regularly reinforced for productivity, but was unable to get effective assistance on a number of occasions when he needed it, even when, indeed, he was interacting with the teacher or an aide. Bushell #2 boy was, by an analysis to be explained below, off-task 18% of the time with high feedback materials in first priority content, and 33% of the time with low feedback materials in this content, the latter condition applying to him for a quarter of his day. Only one of all 16 children initiated fewer child-child interactions than this child, Engelmann-Becker #1 boy, and this latter child spent most of his day in subsettings where child-child interaction was discouraged, while Bushell #2 boy spent most of

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT                                                                                   TABLE    1
BEHAVIOR EPISODE STRUCTURE IN SETTINGS
                                                                                                                          PAGE  1-  1
                                                                                                                          29 APR 1972
                                                       Table 2.14

ROWS = PROGRAM              COLUMNS = PHASE
                                      VERTICAL

                                                          PER-                 PRO-       WAITING
           INTE-     CONTIN-    ALGO-     REPET-     ADDI-      SPEC-     DIREC-     VISION,    RESTING    ALTER-          ROW
          GRATED      GENT     RITHMIC     ITIVE      TIVE       TIVE      TIVE      PREPARE    GAZING     NATIVE          SUMS  KEY
        |---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
BANK    |      252|      205|      316|      195|      606|       62|       84|      293|      185|      163|      2361  RAW
STREET  |   10.673|    8.683|   13.384|    8.259|   25.667|    2.626|    3.558|   12.410|    7.836|    6.904|   100.000  RPR
        |   25.480|   43.158|   15.437|   40.289|   46.508|   37.126|   35.593|   33.107|   39.362|   19.639|    29.939  RPC
        |    3.196|    2.600|    4.007|    2.473|    7.685|    0.786|    1.065|    3.715|    2.346|    2.067|    29.939  RPP
        |    3.196|    2.600|    4.007|    2.473|    7.685|    0.786|    1.065|    3.715|    2.346|    2.067|    29.939  RPT
        |---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
BUSHELL |      169|       49|      393|       43|      307|       49|       45|      206|      129|      225|      1615  RAW
        |   10.464|    3.034|   24.334|    2.663|   19.009|    3.034|    2.786|   12.755|    7.988|   13.932|   100.000  RPR
        |   17.088|   10.315|   19.199|    8.884|   23.561|   29.341|   19.068|   23.277|   27.447|   27.108|    20.479  RPC
        |    2.143|    0.621|    4.984|    0.545|    3.893|    0.621|    0.571|    2.612|    1.636|    2.853|    20.479  RPP
        |    2.143|    0.621|    4.984|    0.545|    3.893|    0.621|    0.571|    2.612|    1.636|    2.853|    20.479  RPT
        |---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
ENGEL-  |      125|       23|     1069|      105|      212|       13|       71|      235|       92|      221|      2166  RAW
MAN -   |    5.771|    1.062|   49.354|    4.848|    9.788|    0.600|    3.278|   10.849|    4.247|   10.203|   100.000  RPR
BECKER  |   12.639|    4.842|   52.223|   21.694|   16.270|    7.784|   30.085|   26.554|   19.574|   26.627|    27.466  RPC
        |    1.585|    0.292|   13.556|    1.331|    2.688|    0.165|    0.900|    2.980|    1.167|    2.802|    27.466  RPP
        |    1.585|    0.292|   13.556|    1.331|    2.688|    0.165|    0.900|    2.980|    1.167|    2.802|    27.466  RPT
        |---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
OPEN    |      443|      198|      269|      141|      178|       43|       36|      151|       64|      221|      1744  RAW
        |   25.401|   11.353|   15.424|    8.085|   10.206|    2.466|    2.064|    8.658|    3.670|   12.672|   100.000  RPR
        |   44.793|   41.684|   13.141|   29.132|   13.661|   25.749|   15.254|   17.062|   13.617|   26.627|    22.115  RPC
        |    5.618|    2.511|    3.411|    1.788|    2.257|    0.545|    0.457|    1.915|    0.812|    2.802|    22.115  RPP
        |    5.618|    2.511|    3.411|    1.788|    2.257|    0.545|    0.457|    1.915|    0.812|    2.802|    22.115  RPT
        |---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
COLUMN         989       475      2047       484      1303       167       236       885       470       830       7886  RAW
 SUMS       12.541     6.023    25.957     6.137    16.523     2.118     2.993    11.222     5.960    10.525    100.000  RPR
           100.000   100.000   100.000   100.000   100.000   100.000   100.000   100.000   100.000   100.000    100.000  RPC
            12.541     6.023    25.957     6.137    16.523     2.118     2.993    11.222     5.960    10.525    100.000  RPP
            12.541     6.023    25.957     6.137    16.523     2.118     2.993    11.222     5.960    10.525    100.000  RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .157849 E  04                  (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 27
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his day in subsettings where it was allowed, though not encouraged. The three other Bushell children spent 18%, 30%, and 21% of their days in child-child interaction, whereas Bushell #2 boy spent only 10% of his day in this way. Putting these and like bits of information together, it appears that Bushell #2 boy's high percentage of passive arrest time can be attributed to a combination of his having been located in situations that were dysfunctional for his main goal oriented activity, and his reacting more passively to this than other children, who were more likely to initiate alternative activity under these circumstances.

The observers, and later the coder, commented regularly on the activeness of Engelmann-Becker #1 girl. In addition, she spent almost all of her day in either high paced or low paced subsettings, the first of which are very coercive of on-task behavior, and the second of which easily tolerate active off-task or alternative activity.

The same comment applies to Open #1 boy, except that the proportions of time spent in high and low pacing are reversed between him and Engelmann-Becker #1 girl.

What we seem to see heightened in the case of these four children is an interaction between individual dispositions and the conditions of the subsettings in which they were observed. Since we have no reason to think that these individuals would not be included in the normal range of variations in activity-passivity, they are included in the various analyses below, that examine the effects of different combinations of subsetting conditions on on-task and off-task behavior.

By any standard we have used so far, there was virtually no difference among the programs in time spent in passive arrest. Furthermore, it is quite likely that the percentages obtained are very small compared with what might be found in more ordinary classrooms. Nonetheless, the passive arrest percentages are important for our analysis. The reason is that when they are combined with the alternative activity percentages, as the passive and active forms of off-task behavior, the resulting sum varies systematically as a function of various combinations of subsetting conditions.

The alternative activity percentages by program were Bank Street 7%, Bushell 14%, Engelmann-Becker 10%, and Open 13%. If, by a procedure similar to the above, we withdraw from these statistics the four children who represent the extremes of alternative activity, Bank Street #2 girl at 4%, Bushell #1 boy at 21%, Engelmann-Becker #2 boy at 15%, and Open #1 boy at 18%, the alternative activity time averages for the remaining three children in each program become Bank Street 8%, Bushell 12%, Engelmann-Becker 9%, and Open 10%. Again, we may be dealing with an interaction between conditions and individuals, not with chance distribution of individuals alone.

Finally, when the passive arrest and active alternative percentages are combined, the sums are Bank Street 15%, Bushell 22%, Engelmann-Becker 14%, and Open 16%. At 23% and 21% respectively, Bushell #1 and Bushell #2 were the two highest of the eight classrooms in off-task behavior. It is this finding that has prompted us to start with the pacing variable in our analysis of the effects of different combinations of subsetting conditions.

12. Behavior address teacher. We remarked above that the activity component of Beller's scheme of autonomy might be reflected in a partial way by the extent to which children participated actively in interactions with a teacher, instead of just passively listening to the teacher or to the teacher's interactions with others. Obviously this inference would be most valid in those subsettings where there is ordinarily no alternative to interacting with or listening to the teacher, so we shall first present

some findings for the section and the class.

Table 2.15 shows the percentages of times that children in the several programs addressed a teacher in the section subsetting when the subsetting task involved first priority content. (Second priority content was rarely involved in the section subsetting.) We can first note that the rank order of programs in the percentage of times in which children did address the teacher is Engelmann-Becker (54%), Open (47%), Bank Street (31%), and Bushell (15%). The reader will notice from the table that this is the same order as the order of the programs in the actual amount of time the section was employed. The proportions of total observed time the section was used in the different programs for first priority content again falls into the same order, Engelmann-Becker (38%), Open (17%), Bank Street (11%), and Bushell (4%). (This table is not included.) Thus, as with children's teacher interaction solicits, (see below), there is a relationship between how often a subsetting was used and how much the programs effected children's active use of the interaction potential of the subsetting. Engelmann-Becker children were involved in mass addresses to the teacher in the section far more than Bushell and Open children, and about twice as much as Bank Street. Bank Street's mass addresses, however, occurred mainly in Bank Street classroom #2, while individual addresses occurred about equally in both Bank Street classrooms. Open children were far the most involved in individual addresses to the teacher, and this was true in both classrooms. That these individual interaction rates obtained in Open were possible is in itself quite interesting, and we will want to consult the original records to see how the Open teachers effected this.

The picture for the class subsetting is similar to the above, but not the same in two important respects. In the first place, the percentages of time children addressed a teacher in the class (here we are combining first and second priority content) were lower for each program, although the order of the percentages was the same: Engelmann-Becker 30%, Open 21%, Bank Street 12%, and Bushell 6%. In the second place, the percentages of time the class subsetting was used in the programs differs in order from the above, as follows: Bank Street (30%), Engelmann-Becker (21%), Open (18%), and Bushell (13%). From the teacher address statistics alone, Bank Street appears to have made the least active use of the class. However, it turns out that a third of this time is accounted for by class games of one sort or another, most of them didactic, and while they were not cooperative subsettings in the strict sense of our code, they did involve high rates of child-child interaction. Similar situations were observed infrequently in the other programs.

Overall, the Engelmann-Becker and Open children were most actively involved in the section and class subsettings. The activity of Bank Street children was uneven, reflecting, as we shall comment on below, an ambiguity in the Bank Street program rationale about the relationship of the classroom as a class to the classroom as a group. Bushell made the least use of the subsetting and class, and had the lowest percentages of addresses to the teacher. In general, Engelmann-Becker's emphasis on active but mass responding in high teacher paced subsettings, Open's emphasis on individual address in these subsettings, Bank Street's emphasis on child-child interaction in the class, and Bushell's de-emphasis of high teacher paced interaction, seem fairly consistent with the basic premises of these programs.

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

                                        Table 2.15

           MAIN    FIRST
         EPISODE = PRIOR-                    SUBSETTING = SECTION
         CONTENT   ITY

ROWS = PROGRAM               COLUMNS = BEHAVIOR
                                       ADDRESS

             DOES                  INDIVI-      MASS       INDIV.
              NOT        MASS       DUAL        NON-       NON-       CANNOT         ROW
           ADDRESS     ADDRESS     ADDRESS     VERBAL     VERBAL      JUDGE          SUMS   KEY
         |----------|-----------|-----------|-----------|-----------|-----------|
BANK     |      118|        30|         23|           |          1|           |      172   RAW
STREET   |   68.605|    17.442|     13.372|           |      0.581|           |  100.000   RPR
         |   18.351|     9.524|      9.746|           |     20.000|           |   13.893   RPC
         |    9.532|     2.423|      1.858|           |      0.081|           |   13.893   RPP
         |    1.706|     0.434|      0.332|           |      0.014|           |    2.486   RPT
         |----------|-----------|-----------|-----------|-----------|-----------|
BUSHELL  |       49|         3|          5|           |           |          1|       58   RAW
         |   84.483|     5.172|      8.621|           |           |      1.724|  100.000   RPR
         |    7.621|     0.952|      2.119|           |           |      9.091|    4.685   RPC
         |    3.958|     0.242|      0.404|           |           |      0.081|    4.685   RPP
         |    0.708|     0.043|      0.072|           |           |      0.014|    0.838   RPT
         |----------|-----------|-----------|-----------|-----------|-----------|
ENGEL-   |      337|       275|         97|         26|          3|         10|      748   RAW
MAN -    |   45.053|    36.765|     12.968|      3.476|      0.401|      1.337|  100.000   RPR
BECKER   |   52.411|    87.302|     41.102|     92.857|     60.000|     90.909|   60.420   RPC
         |   27.221|    22.213|      7.835|      2.100|      0.242|      0.808|   60.420   RPP
         |    4.871|     3.975|      1.402|      0.376|      0.043|      0.145|   10.812   RPT
         |----------|-----------|-----------|-----------|-----------|-----------|
OPEN     |      139|         7|        111|          2|          1|           |      260   RAW
         |   53.462|     2.692|     42.692|      0.769|      0.385|           |  100.000   RPR
         |   21.617|     2.222|     47.034|      7.143|     20.000|           |   21.002   RPC
         |   11.228|     0.565|      8.966|      0.162|      0.081|           |   21.002   RPP
         |    2.009|     0.161|      1.605|      0.029|      0.014|           |    3.758   RPT
         |----------|-----------|-----------|-----------|-----------|-----------|
COLUMN         643        315         236          28           5          11       1238   RAW
SUMS        51.939     25.444      19.063       2.262       0.404       0.889    100.000   RPR
           100.000    100.000     100.000     100.000     100.000     100.000    100.000   RPC
            51.939     25.444      19.063       2.262       0.404       0.889    100.000   RPP
             9.295      4.553       3.411       0.405       0.072       0.159     17.895   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .248200 E  03                        (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 15
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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

O.C.                                                              Table 2.16

                                        SOLICIT
ROWS = PROGRAM                COLUMNS = TEACHER
                                        INTERACTION

            DOES
             NOT      INDUCED    UNINDCD    CANNOT           ROW
           SOLICIT    SOLICIT    SOLICIT    JUDGE            SUMS  KEY
         |----------|----------|----------|----------|
BANK     |     2124|       137|        76|        24|      2361  RAW
STREET   |   89.962|     5.803|[illegible].219|  1.017|   100.000  RPR
         |   30.133|    26.448|[illegible].839| 61.538|    30.011  RPC
         |   26.999|     1.741|     0.966|     0.305|    30.011  RPP
         |   26.999|     1.741|     0.966|     0.305|    30.011  RPT
         |----------|----------|----------|----------|
BUSHELL  |     1460|        69|        70|        12|      1611  RAW
         |   90.627|     4.283|     4.345|     0.745|   100.000  RPR
         |   20.747|    13.320|    25.641|    30.769|    20.478  RPC
         |   18.559|     0.877|     0.890|     0.153|    20.478  RPP
         |   18.559|     0.877|     0.890|     0.153|    20.478  RPT
         |----------|----------|----------|----------|
ENGEL-   |     1941|       190|        34|         1|      2166  RAW
MAN -    |   89.612|     8.772|     1.570|     0.046|   100.000  RPR
BECKER   |   27.583|    36.680|    12.454|     2.564|    27.533  RPC
         |   24.673|     2.415|     0.432|     0.013|    27.533  RPP
         |   24.673|     2.415|     0.432|     0.013|    27.533  RPT
         |----------|----------|----------|----------|
OPEN     |     1512|       122|        93|         2|      1729  RAW
         |   87.449|     7.056|     5.379|     0.116|   100.000  RPR
         |   21.486|    23.552|    34.066|     5.128|    21.978  RPC
         |   19.220|     1.551|     1.182|     0.025|    21.978  RPP
         |   19.220|     1.551|     1.182|     0.025|    21.978  RPT
         |----------|----------|----------|----------|
COLUMN        7037        518        273         39      7867  RAW
 SUMS       89.450      6.584      3.470      0.496   100.000  RPR
           100.000    100.000    100.000    100.000   100.000  RPC
            89.450      6.584      3.470      0.496   100.000  RPP
            89.450      6.584      3.470      0.496   100.000  RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .106054 E  03                     (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 9
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13. Solicit teacher interaction. Table 2.16 shows Engelmann-Becker children induced to solicit interaction with a teacher (typically this is raising the hand following a teacher question) the most of children in the four programs, and soliciting without being induced the least of children in the four programs. The simplest explanation of this is pacing, the Engelmann Becker children spending the most time in high teacher paced subsettings, and thus the least time in medium and low teacher paced subsettings. For all programs the rank order of time spent in high pacing correlates .80 with the rank order of percentages of induced solicits, and the rank order of time spent in medium and low pacing correlates .80 with the rank order of percentages of uninduced solicits.

Table 2.17, Interaction Solicitation and Response by Program, might more logically be included in the later analysis of autonomy as a function of different combinations of subsetting conditions, but we have not crossed it with on-task and off-task behavior. It does throw an interesting light on the solicits reported in Table 2.16. Table 2.17 was made by counting as a 'response follows solicit' every occasion when a child's solicit, or attempt to interact with a teacher, was followed by an interaction with the teacher (coded "address teacher") in the same or the succeeding 30 second interval of the coded behavior stream record. The analysis has been carried out for induced and uninduced separately and together. For induced solicits, the correlation between the rank order of the percentage of time they occurred and the percentage of time they were successful, i.e., were followed by an address to the teacher, was again .80 across programs. To turn the observation around somewhat, programs were successful in responding to the children's induced solicits in about the same proportion as the programs did the inducing, or as they used high teacher pacing. Within programs, however, there turns out to have been considerable variation, with one classroom in each program

COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

Table 2.17

ROWS = PROGRAM

COLUMNS = INTERACTION SOLICITATION AND RESPONSE

	CHILD SOLICIT	NO SOLICIT	SOLICIT INDUCED	SOLICIT NOT INDUCED	RESP. FOLLOWS SOLICIT	NO RESP.	RESP. TO INDUCED	RESP. TO UN-INDUCED	ROW SUMS	KEY
BANK STREET	213	2148	137	76	.56 116	97	.33 45	.93 71	2903	RAW
BUSHELL	139	1476	69	70	.43 60	79	.20 14	.66 46	1953	RAW
ENGEL-MAN - BECKER	224	1942	190	34	.48 107	117	.45 86	.62 21	2721	RAW
OPEN	215	1529	122	93	.70 150	65	.57 69	.85 31	2324	RAW
COLUMN SUMS	791	7095	518	273	433	358	214	219	9901	RAW

(Bank Street #2, Bushell #1, Engelmann-Becker #1, Open #2) failing to respond to a much higher proportion of induced solicits than the other. For uninduced solicits, the correlation between the rank order of the percentage of time they occurred and the percentage of time they were followed by an address to the teacher is only .40 across programs. The Bank Street teachers were the most responsive, though Bank Street was third in the percentage of time with uninduced solicits. That the Open teachers were next most responsive is remarkable when we recognize, for the first time in this analysis, that there was no assistant teacher or aide at any time in Open #1, though in Open #2 the presence of an aide and a student teacher made the classroom comparable to the Follow Through classrooms in our sample. Overall, the Open program seems to have been considerably the most responsive to children's solicits, followed by Bank Street, Engelmann-Becker, and Bushell. The children observed, therefore, might be said to have had control over their interactions with the teacher in this order among the four programs.

With the exception of just two classrooms, Bushell #1 and Open #1, the combined totals of solicits recorded for each of the two children in a given classroom are surprisingly close. In Bushell #1, the girl solicited a teacher's interaction almost 3 times as often as did the boy, but the ratio of uninduced to induced solicits was the same for both children. In Open #1, the girl solicited teacher interactions more than twice as often as the boy did, and yet while 19 of the boy's 38 solicits were uninduced, only 2 of the girl's 81 solicits were uninduced! In three classrooms where the totals were approximately the same, the girls had a higher ratio of uninduced to induced solicits than the boys, and in a fourth the ratio was higher for the boy. These differences all become meaningful as one looks at the details of each case. The most striking pattern is Open #1 girl. A greater percentage of her time included induced solicits than the time of any other child in the study, while only one child solicited uninduced in a lesser percentage of time. In the context of the whole day, the pattern seems to have been one of orientation to other persons and to the requirements of the subsetting she was in, which sometimes complemented and sometimes conflicted with one another. The girl's not soliciting the teacher's interaction uninduced does seem to contain an element of Beller's "wanting to do things by oneself," since she virtually never called the teacher for assistance when she was working independently. Indeed, the girl responded very abruptly, so as to cut off further interaction, on several occasions when the teacher came to her during independent work. A revised version of the pattern, then, would describe a certain ambivalence of the girl toward the teacher, which fluctuated according to the setting they were in. The girl was both more and less independent of the teacher than were other children in the study, according to the subsetting in which they related.

14. Materials mode and materials feedback. We might have related materials mode and materials feedback to Beller's "wanting to do things by oneself," but we did not think of relating materials systematically to Beller's criteria at the time of writing that earlier section of the chapter. Table 2.18 shows only fairly predictable differences among programs in the mode of materials each used. That materials mode was not applicable in Bushell only 6% of the time, compared with 18% for Bank Street, 17% for Engelmann-Becker, and 16% for Open, is consistent with the lesser time Bushell children spend in high teacher paced activity. Symbolic and manipulative mode means, for us, using material like a ruler or like cuisenaire rods combined with an arithmetic worksheet, and it also includes representational art. Manipulative alone includes hammer and nails, building blocks, or the

cuisenaire rods without a symbolic complement. Bank Street's and Open's greater use of manipulative alone is consistent with program rationale, especially the rationale that stresses children's discovery of relationships in manipulative materials. The distribution of symbolic and manipulative is more surprising. It turns out that almost all of the instances included in this column were observed in segmented or integrated art, the exceptions being the use of a calendar with tags by one Bank Street child, the use of a ruler in arithmetic by one Bushell child, and the use of a balance beam by an Open child. One would have thought every program except Engelmann-Becker, and especially Bank Street and Open, would have made greater use of symbolic and manipulative. The cooking activity that has occurred in every Bank Street classroom we have visited was not participated in by the subjects we observed in either of the two classes analyzed, but we presume that both the Bank Street and the Open teachers have been encouraged to use other combinations of symbolic and manipulative in the workshops they have participated in. Of course, this is related to the question of social control in the classroom. Three of the Engelmann-Becker children participated briefly in lessons in which the teachers demonstrated actions with symbolic and manipulative material, but since the children could only look and listen it was coded as such. On a day when the teacher and not the children were observed in a Bank Street classroom, seeds were displayed to the children in anticipation of classifying them, but the children did not actually manipulate the seeds in any symbolic way.

Symbolic alone was coded whether the children just decoded symbolic material held as a reference by the teacher, or whether they decoded or encoded symbolic materials handled by themselves. Writing as such was not coded manipulative by us, since the manipulation involved is only secondarily

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS
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Table 2.18

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                                              EXPECTATION
ROWS = PROGRAM                    COLUMNS = MATERIALS
                                              MODE

          MANI-                                         LOOK                SYMBOL&    SYMBOL/
          PULA-      SYM-                                OR      TRANS-     MANIPU-    PRINTED       ROW
          TIVE       BOLIC     FANTASY    MOTORIC     LISTEN    FERRING    LATIVE     ANSWERS      SUMS  KEY
        |----------|----------|----------|----------|----------|----------|----------|----------|
BANK    |       347|       780|          |        32|       171|       294|       256|        45|    1925  RAW
STREET  |    18.026|    40.519|          |     1.662|     8.883|    15.273|    13.299|     2.338|  100.000  RPR
        |    36.994|    24.209|          |    47.059|    40.235|    31.991|    34.783|    13.975|   28.736  RPC
        |     5.180|    11.644|          |     0.478|     2.553|     4.389|     3.821|     0.672|   28.736  RPP
        |     5.180|    11.644|          |     0.478|     2.553|     4.389|     3.821|     0.672|   28.736  RPT
        |----------|----------|----------|----------|----------|----------|----------|----------|
BUSHELL |        76|       614|         1|          |        85|       255|       209|       277|    1517  RAW
        |     5.010|    40.475|     0.066|          |     5.603|    16.809|    13.777|    18.260|  100.000  RPR
        |     8.102|    19.056|     1.449|          |    20.000|    27.748|    28.397|    86.025|   22.645  RPC
        |     1.134|     9.166|     0.015|          |     1.269|     3.807|     3.120|     4.135|   22.645  RPP
        |     1.134|     9.166|     0.015|          |     1.269|     3.807|     3.120|     4.135|   22.645  RPT
        |----------|----------|----------|----------|----------|----------|----------|----------|
ENGEL-  |        38|      1215|        15|        36|        78|       222|       186|          |    1790  RAW
MAN -   |     2.123|    67.877|     0.838|     2.011|     4.358|    12.402|    10.391|          |  100.000  RPR
BECKER  |     4.051|    37.709|    21.739|    52.941|    18.353|    24.157|    25.272|          |   26.720  RPC
        |     0.567|    18.137|     0.224|     0.537|     1.164|     3.314|     2.777|          |   26.720  RPP
        |     0.567|    18.137|     0.224|     0.537|     1.164|     3.314|     2.777|          |   26.720  RPT
        |----------|----------|----------|----------|----------|----------|----------|----------|
OPEN    |       477|       613|        53|          |        91|       148|        85|          |    1467  RAW
        |    32.515|    41.786|     3.613|          |     6.203|    10.089|     5.794|          |  100.000  RPR
        |    50.853|    19.025|    76.812|          |    21.412|    16.104|    11.549|          |   21.899  RPC
        |     7.120|     9.151|     0.791|          |     1.358|     2.209|     1.269|          |   21.899  RPP
        |     7.120|     9.151|     0.791|          |     1.358|     2.209|     1.269|          |   21.899  RPT
        |----------|----------|----------|----------|----------|----------|----------|----------|
COLUMN         938       3222         69         68        425        919        736        322      6699  RAW
 SUMS       14.002     48.097      1.030      1.015      6.344     13.718     10.987      4.807   100.000  RPR
           100.000    100.000    100.000    100.000    100.000    100.000    100.000    100.000   100.000  RPC
            14.002     48.097      1.030      1.015      6.344     13.718     10.987      4.807   100.000  RPP
            14.002     48.097      1.030      1.015      6.344     13.718     10.987      4.807   100.000  RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .190453 E  04                   (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 21
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a source of information for the writer, compared with the information feedback of the sort, say, mixing colors or hammering produces. That Engelmann-Becker was highest in the proportion of time spent with symbolic alone is understandable.

Only Bushell used symbolic with printed answers to a significant extent. The one instance recorded for Bank Street was a flash card game. Actually, one might have expected symbolic with printed answers in a larger proportion of Bushell's time, as the category especially applies to programmed instruction with answers. In fact, the answer strips had been removed from one set of workbooks in one of the classrooms observed, and at least half of what was coded as symbolic with printed answers in the other classroom consisted simply of copying from models in a workbook or on the board. This latter practice, let us add, does provide potential feedback for the child, and has been recognized as such by us in including it as symbolic with printed answers. Table 2.19 reports the use of high and low feedback materials in just those subsettings where the children engaged in segmented first priority content under medium or low teacher pacing. Manipulative alone (probably not observed under these conditions, but included in the definition anyway), symbolic and manipulative, and symbolic with printed answers, have been condensed as high feedback materials, and symbolic alone and look or listen (again probably not observed) have been condensed as low feedback materials. Bushell (47%) used high feedback materials under these conditions the most, and Bank Street the second most (34%). The order of the four classrooms involved, however, is Bushell #2 (51%), Bank Street #1 (43%), Bushell #1 (40%), and Bank Street #2 (23%). The order among these classrooms within their respective programs is consistent with many of our other findings from these classrooms. That the Open classrooms simply did not use high feedback materials in segmented first priority activity seems to be a serious departure from the program model.

Our analysis in Section II will suggest that the use of high feedback materials did in fact make some contribution to on-task behavior, or the child's control of goal oriented activity, in first priority content under medium and low teacher pacing conditions. In keeping with the logic of most of the present section of the analysis, however, it is sufficient simply to observe that Bushell most often, and Bank Street somewhat less, provided the children with first priority materials intended to reduce the children's dependency on teachers for feedback.

15. Summary. The analysis of single variables by program shows Open and Bank Street maintaining the more autonomous conditions and behavior on most of the variables examined: episode initiation process, who initiates, main episode options, section options, phase routing, main episode length, alternative episode length, and control over child-teacher interactions. On all of these variables except main and alternative episode length, however, Bank Street classroom #1 and Open #1 were consistently less teacher controlled than Bank Street #2 and Open #2. (On episode lengths there was no difference between the two Bank Street classrooms, while Open #1 had longer main and alternative episode lengths than Open #2.)

Considering only the percentages of address to a teacher, Engelmann-Becker and Open children were most actively involved in the section and class subsettings. Individual addresses were obtained far the most often in Open, however, while mass addresses were obtained most in Engelmann-Becker. The percentage of time Bank Street children addressed a teacher was comparatively low, but Bank Street involved children more in child-child interaction in class subsettings.

O.C.

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COLUMBIA CLASSROOMS ENVIRENMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

                    Table 2.19

ROWS = PROGRAM                COLUMNS = MATERIALS FEEDBACK

          HIGH       LOW
          FEED-      FEED-          ROW
          BACK       BACK           SUMS   KEY
        |----------|---------|
BANK    |      125|       242|       367   RAW
STREET  |   34.060|    65.940|   100.000   RPR
        |   23.321|    17.511|    19.135   RPC
        |    6.517|    12.617|    19.135   RPP
        |    6.517|    12.617|    19.135   RPT
        |----------|---------|
BUSHELL |      383|       438|       821   RAW
        |   46.650|    53.350|   100.000   RPR
        |   71.455|    31.693|    42.805   RPC
        |   19.969|    22.836|    42.805   RPP
        |   19.969|    22.836|    42.805   RPT
        |----------|---------|
ENGEL-  |       24|       398|       422   RAW
MAN -   |    5.687|    94.313|   100.000   RPR
BECKER  |    4.478|    28.799|    22.002   RPC
        |    1.251|    20.751|    22.002   RPP
        |    1.251|    20.751|    22.002   RPT
        |----------|---------|
OPEN    |        4|       304|       308   RAW
        |    1.299|    98.701|   100.000   RPR
        |    0.746|    21.997|    16.058   RPC
        |    0.209|    15.850|    16.058   RPP
        |    0.209|    15.850|    16.058   RPT
        |----------|---------|
COLUMN         536       1382       1918   RAW
 SUMS       27.946     72.054    100.000   RPR
           100.000    100.000    100.000   RPC
            27.946     72.054    100.000   RPP
            27.946     72.054    100.000   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .361905 E  03                 (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 3
```

The Bushell program,especially Bushell classroom "[illegible]", controlled children's section initiation and pacing less than any other of the programs. Bushell also provided high feedback materials for medium and low teacher pacing in segmented first priority content more than any other of the programs, although Bank Street was a close second on this dimension, and one Bank Street classroom provided high feedback materials for a larger proportion of time under these conditions than one Bushell classroom. The Bushell children, however, spent somewhat more time in both passive arrest and active alternative behavior than the children of the other programs. The significance of this behavior cannot be ascertained without considering the nature of the tasks it was associated with. Likewise, the proportions of off-task behavior in any of the classrooms analyzed here might be less than one would observe in classrooms with comparable populations that had not been the target of a major program intervention. Nonetheless, the Bushell data especially has suggested to us that we should examine with particular care the relationship between pacing and children's control of their learning behavior, for all the classrooms in our sample. The question of autonomy will thus be pursued further in Section II from this point of view.

B. Heteronomy.

We have indicated above that not much attention has been paid to heteronomy in our analysis of the behavior stream records. Still, we have not just lost track of the concept, and the following results do add something to the general picture of behavior in the observed classrooms.

1. Teacher response adaptiveness. It must be emphasized again that our criterion for adaptiveness was a strict one, calling for a change of behavior toward another person in recognition of the behavior perspective of the other person. Simply acceding to a request, for example a teacher's

giving a child some paper than was requested, did not count as adaptive when there was no special accomodation of the teacher's behavior toward the child. Giving paper after first denying it to the child would be an adaptive response. More often, however, the instances we observed were more didactic, and involved the teacher's incorporating some element of a child's verbal or non-verbal behavior into her response to the child in order to further a course of behavior desired by the teacher.

Table 2.20 shows teacher response adativeness to the children observed, by program for all observed time. Summing the two adaptive columns (adaptive response to an address and adaptive response to a non-addressed behavior) we find adaptive teacher responses 2.9% of all time in Bank Street, 2.4% in Bushell, 1.8% in Engelmann-Becker, and 5.7% in Open. For the classrooms separately the figures are 3.3% and 2.6% for Bank Street #1 and #2, 2.1% and 2.7% for Bushell #1 and #2, 2.7% and 0.6% for Engelmann-Becker #1 and #2, and 5.9% and 5.5% for Open #1 and Open #2.

Table 2.21 shows teacher response adaptiveness by program for just those times when the children observed were involved in interaction with teachers. Summing again the two adaptive columns, we find adaptive responses in 29% of Bank Street teachers' interactions with the subjects, in 19% of Bushell teachers' interactions, in 16% of Engelmann-Becker teachers' interactions, and in 26% of Open teachers' interactions. For the classrooms separately these figures are 39% and 18% for Bank Street #1 and #2, 24% and 16% for Bushell #1 and #2, 18% and 11% for Engelmann-Becker #1 and #2, and 30% and 22% for Open #1 and #2.

These figures generally make sense in terms of what we already know about programs and about individual teachers' styles. Perhaps one would have expected higher proportions of adaptive responses from the Bushell

Table 2.20

ROWS = PROGRAM   COLUMNS = TEACHER RESPONSE ADAPTIVENESS

	NO RES. TO IND. CH. AD.	NON-ADAPT. RESP.	ADAPT. RESPNSE	¬ ADAPT ¬ ADDR.	ADAPT, ¬ ADDR.	CANNOT JUDGE	N/A	ROW SUMS	KEY
BANK STREET	18	106	44	48	25	55	2065	2361	RAW
	0.762	4.490	1.864	2.033	1.059	2.330	87.463	100.000	RPR
	16.364	20.229	22.564	26.230	48.077	36.184	30.960	29.939	RPC
	0.228	1.344	0.558	0.609	0.317	0.697	26.186	29.939	RPP
	0.228	1.344	0.558	0.609	0.317	0.697	26.186	29.939	RPT
BUSHELL	13	91	31	60	8	31	1381	1615	RAW
	0.805	5.635	1.920	3.715	0.495	1.920	85.511	100.000	RPR
	11.818	17.366	15.897	32.787	15.385	20.395	20.705	20.479	RPC
	0.165	1.154	0.393	0.761	0.101	0.393	17.512	20.479	RPP
	0.165	1.154	0.393	0.761	0.101	0.393	17.512	20.479	RPT
ENGEL-MAN - BECKER	26	144	35	28	4	38	1891	2166	RAW
	1.200	6.648	1.616	1.293	0.185	1.754	87.304	100.000	RPR
	23.636	27.481	17.949	15.301	7.692	25.000	28.351	27.466	RPC
	0.330	1.826	0.444	0.355	0.051	0.482	23.979	27.466	RPP
	0.330	1.826	0.444	0.355	0.051	0.482	23.979	27.466	RPT
OPEN	53	183	85	47	15	28	1333	1744	RAW
	3.039	10.493	4.874	2.695	0.860	1.605	76.433	100.000	RPR
	48.182	34.924	43.590	25.683	28.846	18.421	19.985	22.115	RPC
	0.672	2.321	1.078	0.596	0.190	0.355	16.903	22.115	RPP
	0.672	2.321	1.078	0.596	0.190	0.355	16.903	22.115	RPT
COLUMN SUMS	110	524	195	183	52	152	6670	7886	RAW
	1.395	6.645	2.473	2.321	0.659	1.927	84.580	100.000	RPR
	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	RPC
	1.395	6.645	2.473	2.321	0.659	1.927	84.580	100.000	RPP
	1.395	6.645	2.473	2.321	0.659	1.927	84.580	100.000	RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE = .217131 E 03   (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 18

teachers, given especially the emphasis of behavior modification. At least we do see a higher proportion in the Bushell classroom with a somewhat more tutorial style, although the children in this class interacted less with their teachers than the children in the other class.

2. Subject-child response adaptiveness. Table 2.22 shows the adaptiveness between the observed children and children they interacted with, by program for all time observed. Summing the three adaptive columns, 1.3% of Bank Street time was coded subject-child adaptive, 1.9% of Bushell time, 0.5% of Engelmann-Becker time, and 2.4% of Open time. Is it surprising that so little adaptive behavior between the children was observed? Perhaps the finding is partly an artifact of our criteria. Perhaps, on the other hand, it is in line with what is known about the role-taking capacity of children 8 years old. A further finding, however, sheds a little more light on the matter. When we analyze the occurrence of subject-child adaptiveness by subsetting, it occurs 10.2% of all time in the independent cooperative group, 5.9% in the cooperative teacher led group, and less than 1.5% in every other subsetting of the total array. Most of the subject-child adaptiveness in Bushell, for example, occurred during the back-up periods in the children's cooperative or parallel play. In every program it almost always involved behavior that related two children jointly to materials that theycontrolled. Thus the potential for subject-child adaptiveness is considerably higher than was realized in most of the time observed.

C. Objectivity.

None of our coding for this analysis directly describes objectivity. As stated before, the provision and use of materials feedback probably

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

O.C.                                                        Table 2.21
                                                   TEACHER
ROWS = PROGRAM                         COLUMNS = RESPONSE
                                                   ADAPTIVENESS

            NO RES.     NON-
            TO IND.     ADAPT.      ADAPT.      ¬ ADAPT     ADAPT;        ROW
            CH. AD.     RESP.       RESPNSE     ¬ ADDR.     ¬ ADDR.       SUMS   KEY
           |----------|-----------|-----------|-----------|-----------|
BANK       |        18|        106|         44|         48|         25|     241   RAW
STREET     |     7.469|     43.983|     18.257|     19.917|     10.373|  100.000  RPR
           |    16.364|     20.229|     22.564|     26.230|     48.077|   22.650  RPC
           |     1.692|      9.962|      4.135|      4.511|      2.350|   22.650  RPP
           |     1.692|      9.962|      4.135|      4.511|      2.350|   22.650  RPT
           |----------|-----------|-----------|-----------|-----------|
BUSHELL    |        13|         91|         31|         60|          8|     203   RAW
           |     6.404|     44.828|     15.271|     29.557|      3.941|  100.000  RPR
           |    11.818|     17.366|     15.897|     32.787|     15.385|   19.079  RPC
           |     1.222|      8.553|      2.914|      5.639|      0.752|   19.079  RPP
           |     1.222|      8.553|      2.914|      5.639|      0.752|   19.079  RPT
           |----------|-----------|-----------|-----------|-----------|
ENGEL-     |        26|        144|         35|         28|          4|     237   RAW
MAN -      |    10.970|     60.759|     14.768|     11.814|      1.688|  100.000  RPR
BECKER     |    23.636|     27.481|     17.949|     15.301|      7.692|   22.274  RPC
           |     2.444|     13.534|      3.289|      2.632|      0.376|   22.274  RPP
           |     2.444|     13.534|      3.289|      2.632|      0.376|   22.274  RPT
           |----------|-----------|-----------|-----------|-----------|
OPEN       |        53|        183|         85|         47|         15|     383   RAW
           |    13.838|     47.781|     22.193|     12.272|      3.916|  100.000  RPR
           |    48.182|     34.924|     43.590|     25.683|     28.846|   35.996  RPC
           |     4.981|     17.199|      7.989|      4.417|      1.410|   35.996  RPP
           |     4.981|     17.199|      7.989|      4.417|      1.410|   35.996  RPT
           |----------|-----------|-----------|-----------|-----------|
COLUMN            110         524         195         183          52      1064   RAW
 SUMS          10.338      49.248      18.327      17.199       4.887   100.000   RPR
              100.000     100.000     100.000     100.000     100.000   100.000   RPC
               10.338      49.248      18.327      17.199       4.887   100.000   RPP
               10.338      49.248      18.327      17.199       4.887   100.000   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .734698 E  02                          (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 12
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relates to objectivity. The involvement of materials in most of the subject-child adaptiveness we observed may also relate to objectivity, in that it would be through the children's mutual perception of their relationships to objects that adaptive behavior might result most often. Again, we suspect there is a connection between objectivity and the public nature of the rules in a classroom, not merely social or conduct rules, but knowledge rules of the sort that we have frequently coded algorithmic. And again, there might be a relationship between objectivity and the use of reinforcement in a classroom, not directly examined in the present coding. All of these possible connections, however, are merely clues for futher pusuit of the matter. We expect to find the strongest leads in the Pupil Role Interviews to be analyzed this summer, and to be able to conduct more informed observations vis-a-vis objectivity at a later date.

D. Integration.

1. Segmented and integrated academic contents. Table 2.23, on four pages, shows the percentages of the total day spent in the various specific categories of the main episode phase content code. (Note: Spelling was inadvertantly included in the reading category in the Bushell coding, while it was included with writing for Bank Street and Engelmann-Becker, and was not observed in Open.
Handwriting and discursive writing were both included in writing.) Table 2.23 is included simply for the interests of diverse readers, and is not commented on further in this report. A condensation of a number of the categories into First and Second Priority Content is discussed at several points below.

Table 2.24 condenses the categories labeled segmented and those labeled integrated as Segmented and Integrated Content. (100% in Table 2.24 is the

COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

O.C.

Table 2.22

ROWS = PROGRAM   COLUMNS = SUBJECT RESPONSE ADAPTIVENESS

	¬ SUBJ& ¬ CHILD ADAPT.	CHILD ONLY ADAPT.	SUBJ. ONLY ADAPT.	BOTH SUBJ & CHILD	NO RESPONS	CANNOT JUDGE	N/A	ROW SUMS	KEY
BANK STREET	258	12	7	11	33	147	1893	2361	RAW
	10.928	0.508	0.296	0.466	1.398	6.226	80.178	100.000	RPR
	37.664	25.000	23.333	28.947	30.556	35.000	28.870	29.939	RPC
	3.272	0.152	0.089	0.139	0.418	1.864	24.005	29.939	RPP
	3.272	0.152	0.089	0.139	0.418	1.864	24.005	29.939	RPT
BUSHELL	128	12	12	7	22	110	1324	1615	RAW
	7.926	0.743	0.743	0.433	1.362	6.811	81.981	100.000	RPR
	18.686	25.000	40.000	18.421	20.370	26.190	20.192	20.479	RPC
	1.623	0.152	0.152	0.089	0.279	1.395	16.789	20.479	RPP
	1.623	0.152	0.152	0.089	0.279	1.395	16.789	20.479	RPT
ENGEL- MAN - BECKER	36	5	2	5	34	57	2027	2166	RAW
	1.662	0.231	0.092	0.231	1.570	2.632	93.583	100.000	RPR
	5.255	10.417	6.667	13.158	31.481	13.571	30.914	27.466	RPC
	0.457	0.063	0.025	0.063	0.431	0.723	25.704	27.466	RPP
	0.457	0.063	0.025	0.063	0.431	0.723	25.704	27.466	RPT
OPEN	263	19	9	15	19	106	1313	1744	RAW
	15.080	1.089	0.516	0.860	1.089	6.078	75.287	100.000	RPR
	38.394	39.583	30.000	39.474	17.593	25.238	20.024	22.115	RPC
	3.335	0.241	0.114	0.190	0.241	1.344	16.650	22.115	RPP
	3.335	0.241	0.114	0.190	0.241	1.344	16.650	22.115	RPT
COLUMN SUMS	685	48	30	38	108	420	6557	7886	RAW
	8.686	0.609	0.380	0.482	1.370	5.326	83.147	100.000	RPR
	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	RPC
	8.686	0.609	0.380	0.482	1.370	5.326	83.147	100.000	RPP
	8.686	0.609	0.380	0.482	1.370	5.326	83.147	100.000	RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE = .339509 E 03   (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 18

COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
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TABLE 1

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Table 2.23 (1) : Phase Content by Program

ROWS = PROGRAM   COLUMNS = PHASE CONTENT

	COMBINA ACADEM SEGMENT	READING SEGMENT	WRITING SEGMENT	LANGUAG SEGMENT	ARITH-METIC SEGMENT	SCIENCE SEGMENT	SOCIAL STUDIES SEGMENT	ART, CRAFTS SEGMENT	MUSIC SEGMENT	OTHER SEGMENT	COMBINA INTEGRA	READING INTEGRA	KEY
BANK STREET	13	172	119	149	298	7		191	46			100	RAW
	0.551	7.288	5.042	6.314	12.627	0.297		8.093	1.949			4.237	RPR
	48.148	11.316	17.024	30.977	29.073	3.153		42.539	100.000			74.074	RPC
	0.165	2.182	1.510	1.890	3.780	0.089		2.423	0.584			1.269	RPP
	0.165	2.182	1.510	1.890	3.780	0.089		2.423	0.584			1.269	RPT
BUSHELL	1	580	83	1	261	110	41	37			3		RAW
	0.062	35.936	5.143	0.062	16.171	6.815	2.540	2.292			0.186		RPR
	3.704	38.158	11.874	0.208	25.463	49.550	100.000	8.241			100.000		RPC
	0.013	7.358	1.053	0.013	3.311	1.395	0.520	0.469			0.038		RPP
	0.013	7.358	1.053	0.013	3.311	1.395	0.520	0.469			0.038		RPT
ENGEL-MAN - BECKER	3	480	278	329	386	105		6		9		28	RAW
	0.139	22.171	12.841	15.196	17.829	4.850		0.277		0.416		1.293	RPR
	11.111	31.579	39.771	68.399	37.659	47.297		1.336		100.000		20.741	RPC
	0.038	6.089	3.527	4.174	4.897	1.332		0.076		0.114		0.355	RPP
	0.038	6.089	3.527	4.174	4.897	1.332		0.076		0.114		0.355	RPT
OPEN	10	288	219	2	80			215				7	RAW
	0.573	16.514	12.557	0.115	4.587			12.328				0.401	RPR
	37.037	18.947	31.330	0.416	7.805			47.884				5.185	RPC
	0.127	3.653	2.778	0.025	1.015			2.727				0.089	RPP
	0.127	3.653	2.778	0.025	1.015			2.727				0.089	RPT
COLUMN SUMS	27	1520	699	481	1025	222	41	449	46	9	3	135	RAW
	0.343	19.282	8.867	6.102	13.003	2.816	0.520	5.696	0.584	0.114	0.038	1.713	RPR
	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	RPC
	0.343	19.282	8.867	6.102	13.003	2.816	0.520	5.696	0.584	0.114	0.038	1.713	RPP
	0.343	19.282	8.867	6.102	13.003	2.816	0.520	5.696	0.584	0.114	0.038	1.713	RPT

COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

TABLE 1

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Table 2,23 (11): Phase Content by Program

ROWS = PROGRAM

COLUMNS = PHASE CONTENT

	WRITING INTEGRA	LANGUAG INTEGRA	ARITH-METIC INTEGRA	SCIENCE INTEGRA	SOCIAL STUDIES INTEGRA	ART, CRAFTS INTEGRA	MUSIC INTEGRA	OTHER INTEGRA	GENERAL SOCIAL	RITUAL, ANNOUNC	FORMAL SHARING OR S&T	INFORML CONVER-SATION	KEY
BANK STREET	96		47			210	25	28	11	34	208	23	RAW
	4.068		1.992			8.898	1.059	1.186	0.466	1.441	8.814	0.975	RPR
	67.606		58.025			56.150	51.020	100.000	24.444	30.088	51.232	26.437	RPC
	1.218		0.596			2.664	0.317	0.355	0.140	0.431	2.639	0.292	RPP
	1.218		0.596			2.664	0.317	0.355	0.140	0.431	2.639	0.292	RPT
BUSHELL	40			3		33			1	54	50	8	RAW
	2.478			0.186		2.045			0.062	3.346	3.098	0.496	RPR
	28.169			100.000		8.824			2.222	47.788	12.315	9.195	RPC
	0.507			0.038		0.419			0.013	0.685	0.634	0.101	RPP
	0.507			0.038		0.419			0.013	0.685	0.634	0.101	RPT
ENGEL-MAN-BECKER		26			3	98	24		6	4		12	RAW
		1.201			0.139	4.527	1.109		0.277	0.185		0.554	RPR
		100.000			2.190	26.203	48.980		13.333	3.540		13.793	RPC
		0.330			0.038	1.243	0.304		0.076	0.051		0.152	RPP
		0.330			0.038	1.243	0.304		0.076	0.051		0.152	RPT
OPEN	6		34		134	33			27	21	148	44	RAW
	0.344		1.950		7.683	1.892			1.548	1.204	8.486	2.523	RPR
	4.225		41.975		97.810	8.824			60.000	18.584	36.453	50.575	RPC
	0.076		0.431		1.700	0.419			0.343	0.266	1.877	0.558	RPP
	0.076		0.431		1.700	0.419			0.343	0.266	1.877	0.558	RPT
COLUMN SUMS	142	26	81	3	137	374	49	28	45	113	406	87	RAW
	1.801	0.330	1.028	0.038	1.738	4.744	0.622	0.355	0.571	1.433	5.150	1.104	RPR
	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	RPC
	1.801	0.330	1.028	0.038	1.738	4.744	0.622	0.355	0.571	1.433	5.150	1.104	RPP
	1.801	0.330	1.028	0.038	1.738	4.744	0.622	0.355	0.571	1.433	5.150	1.104	RPT

COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

TABLE 1

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Table 2.23 (iii): Phase Content by Program

ROWS = PROGRAM COLUMNS = PHASE CONTENT

	OBJECT PLAY SOCIAL	FANTASY PLAY	PHYSICL CONFLCT (PREPO)	NON-PHYSICL CONFLCT	PUNISH/ REMOVE FR. SET	GENERAL PHYSICL	EATING	SELF PHYSICL MAINTEN	PHYSICL EXERCIS	OBJECT MANIPUL (ALONE)	MOTOR GAME	TRANSI-TION	KEY
BANK STREET	132		5	8	2		34					180	RAW
	5.593		0.212	0.339	0.085		1.441					7.627	RPR
	67.692		38.462	33.333	40.000		47.222					33.898	RPC
	1.674		0.063	0.101	0.025		0.431					2.283	RPP
	1.674		0.063	0.101	0.025		0.431					2.283	RPT
BUSHELL	7		8	10	2		23	5	7	9		86	RAW
	0.434		0.496	0.620	0.124		1.425	0.310	0.434	0.558		5.328	RPR
	3.590		61.538	41.667	40.000		31.944	50.000	21.875	13.043		16.196	RPC
	0.089		0.101	0.127	0.025		0.292	0.063	0.089	0.114		1.091	RPP
	0.089		0.101	0.127	0.025		0.292	0.063	0.089	0.114		1.091	RPT
ENGEL-MAN - BECKER				2			15	4	25		26	208	RAW
				0.092			0.693	0.185	1.155		1.201	9.607	RPR
				8.333			20.833	40.000	78.125		100.000	39.171	RPC
				0.025			0.190	0.051	0.317		0.330	2.639	RPP
				0.025			0.190	0.051	0.317		0.330	2.639	RPT
OPEN	56	170		4	1	4		1		60		57	RAW
	3.211	9.743		0.229	0.057	0.229		0.057		3.440		3.268	RPR
	28.718	100.000		16.667	20.000	100.000		10.000		86.957		10.734	RPC
	0.710	2.157		0.051	0.013	0.051		0.013		0.761		0.723	RPP
	0.710	2.157		0.051	0.013	0.051		0.013		0.761		0.723	RPT
COLUMN SUMS	195	170	13	24	5	4	72	10	32	69	26	531	RAW
	2.474	2.157	0.165	0.304	0.063	0.051	0.913	0.127	0.406	0.875	0.330	6.736	RPR
	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	RPC
	2.474	2.157	0.165	0.304	0.063	0.051	0.913	0.127	0.406	0.875	0.330	6.736	RPP
	2.474	2.157	0.165	0.304	0.063	0.051	0.913	0.127	0.406	0.875	0.330	6.736	RPT

Table 2.23 (iv): Phase Content by Program

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ROWS = PROGRAM                COLUMNS = PHASE CONTENT

                                              LOOK @     LOOK @
          ENVIRON    MATRIAL    GENERAL       NON-       ACAD.,     CANNOT          ROW
          MAINTEN    TRANSFR    LOOKING       ACAD.      RELATED    JUDGE          SUMS  KEY
        |---------|----------|----------|----------|----------|----------|
BANK    |       94|       127|         1|          |          |          |     2360  RAW
STREET  |    3.983|     5.381|     0.042|          |          |          |  100.000  RPR
        |   70.677|    30.529|    16.667|          |          |          |   29.938  RPC
        |    1.192|     1.611|     0.013|          |          |          |   29.938  RPP
        |    1.192|     1.611|     0.013|          |          |          |   29.938  RPT
        |---------|----------|----------|----------|----------|----------|
BUSHELL |       17|       128|          |         5|         1|          |     1614  RAW
        |    1.053|     7.931|          |     0.310|     0.062|          |  100.000  RPR
        |   12.782|    30.769|          |    38.462|     8.333|          |   20.474  RPC
        |    0.216|     1.624|          |     0.063|     0.013|          |   20.474  RPP
        |    0.216|     1.624|          |     0.063|     0.013|          |   20.474  RPT
        |---------|----------|----------|----------|----------|----------|
ENGEL-  |        3|        57|         5|         8|        11|         4|     2165  RAW
MAN -   |    0.139|     2.633|     0.231|     0.370|     0.508|     0.185|  100.000  RPR
BECKER  |    2.256|    13.702|    83.333|    61.538|    91.667|   100.000|   27.464  RPC
        |    0.038|     0.723|     0.063|     0.101|     0.140|     0.051|   27.464  RPP
        |    0.038|     0.723|     0.063|     0.101|     0.140|     0.051|   27.464  RPT
        |---------|----------|----------|----------|----------|----------|
OPEN    |       19|       104|          |          |          |          |     1744  RAW
        |    1.089|     5.963|          |          |          |          |  100.000  RPR
        |   14.286|    25.000|          |          |          |          |   22.124  RPC
        |    0.241|     1.319|          |          |          |          |   22.124  RPP
        |    0.241|     1.319|          |          |          |          |   22.124  RPT
        |---------|----------|----------|----------|----------|----------|
COLUMN        133        416          6         13         12          4       7883  RAW
 SUMS       1.687      5.277      0.076      0.165      0.152      0.051    100.000  RPR
          100.000    100.000    100.000    100.000    100.000    100.000    100.000  RPC
            1.687      5.277      0.076      0.165      0.152      0.051    100.000  RPP
            1.687      5.277      0.076      0.165      0.152      0.051    100.000  RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .496128 E  04
DEGREES OF FREEDOM = 123
STANDARDIZED CHI SQUARE = -.178439 E  03
```

total of these academics, rather than a total for all time in an observed day.) The two Bank Street classrooms had virtually identical proportions of integrated academic content, 33% and 34% respectively. Examples of this included writing about seeds, measuring in a carpentry project, and drawing pictures of the meanings of words. All of Bushell's integrated content (7%) occurred during the back-up period in Bushell #1, which included making valentines with messages, and the use of a printing set to compose a sign. All of Engelmann-Becker's integrated content (10%) occurred in Engelmann-Becker #1, listening to a public address broadcast of Negro spirituals and Langston Hughes poetry, and making ecology posters. Various integrated contents in Open #1 (29%) were related to the construction of a village around a model of the Brooklyn Bridge, and in Open #2 (9%) an African arithmetic game was played briefly.

One would expect Bank Street and Open to have the most integrated academic content, though the obtained proportions might not be very meaningful. The significance of this integrated content will be explored below in Section III, where we shall ask what subsetting conditions and behavior were associated with it.

2. Phase cognitive complexity. (See Table 2.25.) With occasional exceptions, phase cognitive complexity was coded only when the phase content could be classified with one of the segmented or academic integrated content categories. Thus ritual, formal sharing or show and tell, informal conversation, fantasy play, object play (social), and object manipulation (alone), as well as eating, environment maintenance, and transition, were not ordinarily coded on the phase cognitive complexity dimension. The highest percentage of this N/A is recorded for Open (35%), followed by Bank Street (30%), Bushell (24%), and Engelmann-Becker (16%). Only in Open

COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
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Table 2.24

ROWS = PROGRAM

COLUMNS = PHASE CONTENT INTEGRATION

	SEGMENTED CONTENT	INTEGRATED CONTENT	ROW SUMS	KEY
BANK STREET	995	506	1501	RAW
	66.289	33.711	100.000	RPR
	22.018	51.738	27.306	RPC
	18.101	9.205	27.306	RPP
	18.101	9.205	27.306	RPT
BUSHELL	1114	79	1193	RAW
	93.378	6.622	100.000	RPR
	24.651	8.078	21.703	RPC
	20.266	1.437	21.703	RPP
	20.266	1.437	21.703	RPT
ENGEL-MAN - BECKER	1596	179	1775	RAW
	89.915	10.085	100.000	RPR
	35.318	18.303	32.290	RPC
	29.034	3.256	32.290	RPP
	29.034	3.256	32.290	RPT
OPEN	814	214	1028	RAW
	79.183	20.817	100.000	RPR
	18.013	21.881	18.701	RPC
	14.808	3.893	18.701	RPP
	14.808	3.893	18.701	RPT
COLUMN SUMS	4519	978	5497	RAW
	82.208	17.792	100.000	RPR
	100.000	100.000	100.000	RPC
	82.208	17.792	100.000	RPP
	82.208	17.792	100.000	RPT

STATISTICS BASED ON RAW FREQUENCY

was there a substantial difference in N/A between the two classrooms, with Open #1 coded N/A 47% of the time, and Open #2 coded N/A only 20% of the time. The percentage for Open #1 is particularly arresting. Even more so is the breakdown by child, with Open #1 girl spending 59% of her day in activities to which we did not apply phase cognitive complexity, the boy spending 35% of his day in these activities. We do not mean to imply that these activities were not valuable. Essentially we did not know how to apply phase cognitive complexity to these activities, and we did not want to confuse the meaning of the variable in its application to the more conventional content categories. Of course, the differences in the percentages of N/A in the various programs and classrooms will lead the reader to question how on-task and off-task behavior can be compared among programs and classrooms. It is for this and related reasons that the distinction between First and Second Priority Content will be used in that analysis.

It has been our assumption, in coding cognitive complexity, that receive information or perform routines demands the least integration of information and operations, learn skills or concepts demands more, and apply information and skills or concepts demands the most. We mean "demands" rather ambiguously in this, i.e, it signifies that cognitive integration of some degree is expected by a teacher, or that it is required for mastery of the task. The ambiguity of this stems partly from the fact that information does in fact have to be integrated by the learner in order to be retained -- this is the most basic finding of verbal learning research -- but a teacher, unaware of this, might not expect or provide for this integration. Where the situation is ambiguous in this way, for example when a teacher is conducting a recitation that only loosely connects facts to one another, we have tended to code at the level of the explicit demands, rather

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Table 2.25

ROWS = PROGRAM COLUMNS = PHASE COGNITIVE COMPLEXITY

	PECEIVE INFOR-MATION	LEARN SKILLS	APPLY INFORM& SKILLS	CANNOT JUDGE	N/A	ROW SUMS	KEY
BANK STREET	686	638	338		699	2361	RAW
	29.055	27.022	14.316		29.606	100.000	RPR
	37.692	19.679	44.357		34.064	29.939	RPC
	8.699	8.090	4.286		8.864	29.939	RPP
	8.699	8.090	4.286		8.864	29.939	RPT
BUSHELL	214	927	63		391	1615	RAW
	13.251	57.399	5.139		24.211	100.000	RPR
	11.758	28.593	10.892		19.055	20.479	RPC
	2.714	11.755	1.052		4.956	20.479	RPP
	2.714	11.755	1.052		4.958	20.479	RPT
ENGEL-MAN - BECKER	711	998	100	10	347	2166	RAW
	32.825	46.076	4.617	0.462	16.020	100.000	RPR
	39.066	30.783	13.123	100.000	16.910	27.466	RPC
	9.016	12.655	1.268	0.127	4.400	27.466	RPP
	9.016	12.655	1.268	0.127	4.400	27.466	RPT
OPEN	209	679	241		615	1744	RAW
	11.984	38.933	13.819		35.264	100.000	RPR
	11.484	20.944	31.627		29.971	22.115	RPC
	2.650	8.610	3.056		7.799	22.115	RPP
	2.650	8.610	3.056		7.799	22.115	RPT
COLUMN SUMS	1820	3242	762	10	2052	7836	RAW
	23.079	41.111	9.663	0.127	26.021	100.000	RPR
	100.000	100.000	100.000	100.000	100.000	100.000	RPC
	23.079	41.111	9.663	0.127	26.021	100.000	RPP
	23.079	41.111	9.663	0.127	26.021	100.000	RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE = .875494 E 03 (SIGNIFICANT AT .001 LEVEL) than the implicit, but often unrealized, requirements of the task.

When the *proportions* of time given to learning skills and concepts are considered by program, the order from highest to lowest is Bushell, Engelmann-Becker, Open and Bank Street. When the *actual time* coded learn skills or concepts is considered, however, the order is Engelmann-Becker, Bushell, Open, and Bank Street.

When the proportions of time given to learning skills and concepts are considered by *classroom*, the order from highest to lowest is Bushell #2, Bushell #1, Engelmann-Becker #1, Open #2, Engelmann-Becker #2, Open #1, Bank Street #1, and Bank Street #2. When the actual time coded learn skills or concepts is considered by classroom, the order is Engelmann-Becker #1, Bushell #2, Bank Street #1 and Bushell #1, Engelmann-Becker #2, Open #1 and Open #2, and Bank Street #2.

The Engelmann-Becker percentages in this may be lower than others of our statistics from these same classrooms would imply, for example the finding, to be reported below, that phase function relationships were coded algorithmic most often in Engelmann-Becker among the four programs. The skills and concepts learning percentage results from a coder judgment, perhaps not warranted, that the emphasis in certain recitations was more on performing (or "overlearning") already learned skills and concepts, not new learning as the code implies.

Apply information and skills to the complex production of something was coded most often for Bank Street and Open, though, as the reader might judge from the findings, the code was used conservatively.

Lessons taught with high teacher pacing to a large group, i.e., in the subsetting "class," are particularly liable to be coded receive information. Bushell's showing the least time in receive information and N/A combined reflects especially the fact that the least time was spent in class subsettings in Bushell.

3. Phase vertical integration and orientation. Table 2.14, referred to above in the discussion of passive arrest behavior, shows the proportions of time coded in the various separate categories of the phase vertical function code. A phase vertical integration and orientation variable, reported by program in Table 2.26 and by classroom in Table 2.27, condenses these categories as follows: integrated and contingent as high integration; algorithmic as medium integration; repetitive and additive as low integration; perspective and directive as high orientation; provisioning or preparing as transition; and passive arrest and active alternative as low orientation (the same, therefore, as off-task.)

The two Bank Street classrooms appear remarkably similar in their proportions of time in the six categories of the condensed code. The relatively high percentages of time coded low integration, 34% and 33% for Bank Street #1 and #2 classrooms respectively, clearly contradict the strong emphasis of the program's rationale on the integration of behavior. The reason for this has been fairly obvious to us since the beginning of our observations, though it is now confirmed in the analysis to be presented below in Section III. For all programs combined, 43% of all phase function relationships coded low integrated occurred in the class subsetting. By attempting to treat a whole class as if it were a group, in the integrated sense of group, for example in class discussions of the weather, or in a game of musical chairs, Bank Street often sacrifices integrated behavior relationships. Painting, some of the carpentry, and some of the discursive writing, are examples of activity in which the phase function relationships were most likely to be highly integrated.

The two Bushell classrooms are also strikingly similar, though differing

COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

Table 2.26

ROWS = PROGRAM COLUMNS = PHASE VERTICAL ORGANIZATION

	HIGH INTE- GRATION	MEDIUM INTE- GRATION	LOW INTE- GRATION	HIGH ORIEN- TATION	TRANSI- TION	LOW ORIEN- TATION	ROW SUMS	KEY
BANK STREET	457	316	801	146	293	348	2361	RAW
	19.356	13.384	33.926	6.184	12.410	14.740	100.000	RPR
	31.216	15.437	44.824	36.228	33.107	26.769	29.939	RPC
	5.795	4.007	10.157	1.851	3.715	4.413	29.939	RPP
	5.795	4.007	10.157	1.851	3.715	4.413	29.939	RPT
BUSHELL	218	393	350	94	206	354	1615	RAW
	13.498	24.334	21.672	5.820	12.755	21.920	100.000	RPR
	14.891	19.199	19.586	23.325	23.277	27.231	20.479	RPC
	2.764	4.984	4.438	1.192	2.612	4.489	20.479	RPP
	2.764	4.984	4.438	1.192	2.612	4.489	20.479	RPT
ENGEL- MAN - BECKER	148	1069	317	84	235	313	2166	RAW
	6.833	49.354	14.635	3.878	10.849	14.451	100.000	RPR
	10.109	52.223	17.739	20.844	26.554	24.077	27.466	RPC
	1.877	13.556	4.020	1.065	2.980	3.969	27.466	RPP
	1.877	13.556	4.020	1.065	2.980	3.969	27.466	RPT
OPEN	641	269	319	79	151	285	1744	RAW
	36.755	15.424	18.291	4.530	8.658	16.342	100.000	RPR
	43.784	13.141	17.851	19.603	17.062	21.923	22.115	RPC
	8.128	3.411	4.045	1.002	1.915	3.614	22.115	RPP
	8.128	3.411	4.045	1.002	1.915	3.614	22.115	RPT
COLUMN SUMS	1464	2047	1787	403	885	1300	7886	RAW
	18.565	25.957	22.660	5.110	11.222	16.485	100.000	RPR
	100.000	100.000	100.000	100.000	100.000	100.000	100.000	RPC
	18.565	25.957	22.660	5.110	11.222	16.485	100.000	RPP
	18.565	25.957	22.660	5.110	11.222	16.485	100.000	RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE = .145055 E 04 (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 15

COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

O.C.

Table 2.27(1)

ROWS = CLASSROOM COLUMNS = PHASE VERTICAL ORGANIZATION

	HIGH INTE-GRATION	MEDIUM INTE-GRATION	LOW INTE-GRATION	HIGH ORIEN-TATION	TRANSI-TION	LOW ORIEN-TATION	ROW SUMS	KEY
BANK ST. #1	285	200	490	96	140	214	1425	RAW
	20.000	14.035	34.386	6.737	9.825	15.018	100.000	RPR
	19.467	9.770	27.420	23.821	15.819	15.462	18.070	RPC
	3.614	2.536	6.214	1.217	1.775	2.714	18.070	RPP
	3.614	2.536	6.214	1.217	1.775	2.714	18.070	RPT
BANK ST. #2	172	116	311	50	153	134	936	RAW
	18.376	12.393	33.226	5.342	16.345	14.316	100.000	RPR
	11.749	5.667	17.403	12.407	17.288	10.308	11.869	RPC
	2.181	1.471	3.944	0.634	1.940	1.699	11.869	RPP
	2.181	1.471	3.944	0.634	1.940	1.699	11.869	RPT
BUSHELL #1	174	119	183	41	110	185	812	RAW
	21.429	14.655	22.537	5.049	13.547	22.783	100.000	RPR
	11.885	5.813	10.241	10.174	12.429	14.231	10.297	RPC
	2.206	1.509	2.321	0.520	1.395	2.346	10.297	RPP
	2.206	1.509	2.321	0.520	1.395	2.346	10.297	RPT
BUSHELL #2	44	274	167	53	96	169	803	RAW
	5.479	34.122	20.797	6.600	11.955	21.046	100.000	RPR
	3.005	13.385	9.345	13.151	10.347	13.000	10.183	RPC
	0.558	3.475	2.118	0.672	1.217	2.143	10.183	RPP
	0.558	3.475	2.118	0.672	1.217	2.143	10.183	RPT
E-B #1	134	614	164	60	110	130	1212	RAW
	11.056	50.660	13.531	4.950	9.076	10.726	100.000	RPR
	9.153	29.995	9.177	14.888	12.429	10.000	15.369	RPC
	1.699	7.786	2.080	0.761	1.395	1.648	15.369	RPP
	1.699	7.786	2.080	0.761	1.395	1.648	15.369	RPT
E-B #2	14	455	153	24	125	183	954	RAW
	1.468	47.694	16.038	2.516	13.103	19.182	100.000	RPR
	0.956	22.228	8.562	5.955	14.124	14.077	12.097	RPC
	0.178	5.770	1.940	0.304	1.585	2.321	12.097	RPP
	0.178	5.770	1.940	0.304	1.585	2.321	12.097	RPT
OPEN #1	555	123	66	23	74	175	1016	RAW
	54.626	12.106	6.496	2.264	7.283	17.224	100.000	RPR
	37.910	6.009	3.693	5.707	8.362	13.462	12.884	RPC
	7.038	1.560	0.837	0.292	0.938	2.219	12.884	RPP
	7.038	1.560	0.837	0.292	0.938	2.219	12.884	RPT

importantly in high and medium integration. The contingent phases occurring when a teacher checks a child's workbook in his presence contribute to high integration in both Bushell classrooms. In Bushell #1, the back-up activities and one child's reading fluently for meaning also contribute to high integration. Low orientation in all classrooms occurs at the expense of algorithmic or medium integration more than any other of the separate phase function categories, and this is particularly the case in both Bushell classrooms.

The major differences between the two Engelmann-Becker classrooms occur in the high integration and low orientation condensed categories. The occurrence of highly integrated activity, making ecology posters in the case of Engelmann-Becker #1, itself reduced the likelihood of low orientation. Part of the difference in the low orientation, however, is more intrinsic to the interaction between the particular children and the conditions of the algorithmic activity, which interaction was not exactly the same in the two classrooms. Medium integration, or algorithmic, phase relationships occurred substantially more often in Engelmann-Becker than in any other of the programs.

Only the two Open classrooms look radically different from one another in phase integration and orientation, with Open #1 appearing to be far the most, and Open #2 the least, integrated of all the classrooms in the study, considering, that is, all three categories of integration in the condensed code. Open #2 girl spent a third of her day in a very mechanical task of tearing up cardboard for an anticipated construction activity, and this was coded repetitive by us. The boy's ceramics and Lincoln log activities were coded integrated for most of their course. One could say that the proportions of high and low integration might have been quite different on another

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS
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Table 2.27(ii)

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ROWS = CLASSROOM                COLUMNS = PHASE VERTICAL
                                          ORGANIZATION

                                                                      LOW
            HIGH      MEDIUM       LOW       HIGH.                   ORIEN-
            INTE-      INTE-      INTE-     ORIEN-     TRANSI-      ORIEN-        ROW
           GRATION    GRATION    GRATION    TATION      TION        TATION        SUMS    KEY
          |---------|---------|---------|---------|---------|---------|
OPEN #2|        86|       146|       253|        56|        77|       110|       728    RAW
          |   11.813|   20.055|   34.753|    7.692|   10.577|   15.110|   100.000    RPR
          |    5.874|    7.132|   14.158|   13.896|    8.701|    5.462|     9.232    RPC
          |    1.091|    1.851|    3.208|    0.710|    0.976|    1.395|     9.232    RPP
          |    1.091|    1.851|    3.208|    0.710|    0.976|    1.395|     9.232    RPT
          |---------|---------|---------|---------|---------|---------|
COLUMN        1464       2047       1787        403        885       1300        7886    RAW
 SUMS       18.565     25.957     22.660      5.110     11.222     16.485     100.000    RPR
           100.000    100.000    100.000    100.000    100.000    100.000     100.000    RPC
            18.565     25.957     22.660      5.110     11.222     16.485     100.000    RPP
            18.565     25.957     22.660      5.110     11.222     16.485     100.000    RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .226935 E  C4
DEGREES OF FREEDOM = 35
STANDARDIZED CHI SQUARE = -.667134 E  03
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day. On the other hand, the proportions obtained are consistent with many other features of the teachers' behavior and the general organization of the two classrooms, on both days that we observed in each.

To try to make these statements about phase function integration more meaningful would virtually require training the reader in the use of the code, or so we think. Section III below should add some meaning to our statements, beyond that which can be stitched together from the present statements and from our previous discussions of the vertical function codes.

4. Summary. The highest proportions of integrated academic content were obtained in the two Bank Street classrooms, with the next highest proportion in Open. The highest proportions of apply information and skills to a complex production, presumed by us to require high integration of cognitive complexity, were also obtained for Bank Street and Open. However, a condensation of the phase function relationships in the Bank Street child behavior streams showed the highest proportion of low integration relationships, relative to the three condensed integrated codes themselves, and relative to the three other programs observed. The high integration that occurred in medium and low teacher paced activity gave way to low integration in high teacher paced activity in the Bank Street classrooms.

Bushell and Engelmann-Becker ranked highest in the proportions of time given to learning skills and concepts, and in the proportions of time coded medium organization in the condensation of the phase function relationships. Whether algorithmic relationships really would scale "medium" under further analysis is an intriguing question, but one too difficult for us to consider yet. One test would be to relate the phase integration scale to observations of the involvement of children in different tasks. For the present, we have wanted to suggest by the code that Bushell and Engelmann-

Becker, in particular, have not simply neglected integration by their emphasis on skills and concepts, but have in fact effected more organization of differentiated elements in their classrooms than one finds in the more stereotypically "traditional" classroom, where the relationships are weaker or more arbitrary.

E. Subsettings.

Mayer's Chapter 3 of this report presents and discusses at length her findings on the subsettings, called "setting clusters" in BORIS, in eight second grade classrooms newly observed this past winter, two each from the Bank Street, Bushell, Engelmann-Becker, and Weikart programs. (Weikart was included because of Mayer's special interest in this program, not in a presumption that it was the same as the Open program classrooms reported in the present chapter.) We will not duplicate Mayer's report, but will show briefly how her findings compare with ours.

As indicated previously, a number of the BORIS codes were included in the BESIS codes. Some of the BORIS codes were slightly amplified for BESIS, for example materials mode. The interpretations of some codes were altered for BESIS, particularly the pupil cluster code, which we interpreted more with reference to the normative group (or the number of children a child was expected or allowed to relate to at a given time) than the actual group (the number of children a child was actually clustered with at a given time, which we found difficult to discriminate at times in the behavior stream records, and indeed find difficult to discriminate in the actual classroom in certain situations.) We also coded differently from BORIS the match or mismatch of a child's behavior to subsetting expectations, specifically to the expectations teacher attend, teacher address, child-child interaction, and materials interaction. Whereas Mayer calculated whether or not a given expectation was operating for a child at a given time, for example the expectation teacher address, and then coded the match to the operating expectation, we coded more strictly in terms of the overall subsetting expectation on the variable. The result of this was that we saw a mismatch on, again, the teacher address variable, whenever the general expectation in the subsetting was that the child address the teacher, rather than on just those occasions when the teacher had called on the child and he failed to respond. Our purpose in this was to see how mcuh one or another subsetting itself departed from general expectations for the subsetting, for example, how much the subsetting class, during imes when a teacher was continually soliciting addresses from different children, departed for a given child from the expectation that he would himself address the teacher.

For the purpose of comparison to the BORIS findings, we have recondensed our amplified categories and have recorded our own BESIS findings on pages resembling the BORIS findings pages. The BESIS data is included in the appendix to the BORIS chapter, on pages 3-A-2, 3-A-4, 3-A-16, 3-A-18, 3-A-22, and 3-A-24. Each row in the BESIS tables has been asterisked when it agrees with the corresponding BORIS row as to the program showing the highest pupil occupancy time in the given category (including only Bank Street, Bushell, and Engelmann-Becker in this comparison.) If the reader will first compare 3-A-1 and 3-A-2, he will find substantial agreement between the BORIS and BESIS findings on which programs had the highest pupil occupancy times in the various categories of the so-called "super setting codes," teacher pacing, group cluster (here there is major disagreement, for the reason recognized above), material homogeneity, product-performance, and setting cluster or subsetting. Leaving out group cluster, the BORIS and IRIS findings occur in 15 out of 17 comparisons of thc highest pupil occupancy times by programs. This agreement supports both the consistency of program representation itself in our two different observation samples, and the validity of our relating, in subsequent analyses, findings obtained separately with BESIS and BORIS, for example, our relating the IRIS involvement findings coordinated with BORIS to our own on-task/off-task findings as a function of subsettings. Similar comparisons, where the categories were comparable enough to allow comparison, show agreement in 5 out of 5 categories of the teacher attend expectations and behavior (3-A-15 and 3-A-16), in 4 out of 5 categories of the teacher address expectations and behavior (3-A-17 and 3-A-18), and in 7 out of 10 categories of the materials interaction expectations and behavior categories.

The most striking of these comparisons concern the behavior categories. The order of the three programs is the same in the tables for teacher attend, teacher address, and child-child interaction. For materials interaction behavior the order is not the same, but both BORIS and BESIS obtained very narrow ranges on this variable, Engelmann-Becker showing materials interaction behavior 71% of the time by BORIS and 68% of the time by BESIS, Bank Street 80% and 67%, and Bushell 66% and 70%.

Considerable variation between classrooms within programs has been obtained with both BORIS and BESIS, as we have already indicated for many variables not included in BORIS. We anticipate studying this variation by pooling the BORIS and BESIS findings on some of the variables. It should come as no great surprise that classrooms varied, and one might well expect that a random sample of classrooms from programs, rather than classrooms recommended as program exemplars, would vary even more on most of the variables.

The BORIS setting clusters are labeled in BESIS with the names of the closely related subsettings we had come to use in earlier progress reports:

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TABLE 2

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Table 2.28

ROWS = PROGRAM COLUMNS = SUBSETTING

	TUTORIAL	SECTION	CLASS	ASSIGN	CLUSTER SAME	CLUSTER DIFF	GROUP DEPENDENT	PARTITION	CONTAIN SAME	CONTAIN DIFF	GROUP INDEPENDENT	ROW SUMS	KEY
BANK STREET	43	232	638	225				565	140	110	149	2102	RAW
	2.046	11.037	30.352	10.704				26.879	6.660	5.233	7.088	100.000	RPR
	24.713	17.616	41.919	36.946				33.392	22.187	34.483	40.934	29.714	RPC
	0.608	3.280	9.019	3.181				7.987	1.979	1.555	2.106	29.714	RPP
	0.608	3.280	9.019	3.181				7.987	1.979	1.555	2.106	29.714	RPT
BUSHELL	33	58	184	284	298	7	10	167	340	3	21	1405	RAW
	2.349	4.128	13.096	20.214	21.210	0.498	0.712	11.886	24.199	0.214	1.495	100.000	RPR
	18.966	4.404	12.089	46.634	99.333	8.974	14.706	9.870	53.883	0.940	5.769	19.861	RPC
	0.466	0.820	2.601	4.015	4.213	0.099	0.141	2.361	4.806	0.042	0.297	19.861	RPP
	0.466	0.820	2.601	4.015	4.213	0.099	0.141	2.361	4.806	0.042	0.297	19.861	RPT
ENGEL-MAN - BECKER	65	754	415	28		28		580	11	118		1999	RAW
	3.252	37.719	20.760	1.401		1.401		29.015	0.550	5.903		100.000	RPR
	37.356	57.251	27.267	4.598		35.897		34.279	1.743	36.991		28.258	RPC
	0.919	10.659	5.867	0.396		0.396		8.199	0.155	1.668		28.258	RPP
	0.919	10.659	5.867	0.396		0.396		8.199	0.155	1.668		28.258	RPT
OPEN	33	273	285	72	2	43	58	380	140	88	194	1568	RAW
	2.105	17.411	18.176	4.592	0.128	2.742	3.699	24.235	8.929	5.612	12.372	100.000	RPR
	18.966	20.729	18.725	11.823	0.667	55.128	85.294	22.459	22.187	27.586	53.297	22.166	RPC
	0.466	3.859	4.029	1.018	0.028	0.608	0.820	5.372	1.979	1.244	2.742	22.166	RPP
	0.466	3.859	4.029	1.018	0.028	0.608	0.820	5.372	1.979	1.244	2.742	22.166	RPT
COLUMN SUMS	174	1317	1522	609	300	78	68	1692	631	319	364	7074	RAW
	2.460	18.617	21.515	8.609	4.241	1.103	0.961	23.919	8.920	4.509	5.146	100.000	RPR
	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	RPC
	2.460	18.617	21.515	8.609	4.241	1.103	0.961	23.919	8.920	4.509	5.146	100.000	RPP
	2.460	18.617	21.515	8.609	4.241	1.103	0.961	23.919	8.920	4.509	5.146	100.000	RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE = .359409 E 04 (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 30

tutorial, section, class, assign, cluster, group dependent, partition, contain, and group independent. In addition, two of these subsettings have themselves been subdivided, the cluster and the contain. In both the cluster and the contain pupils have different tasks, in the first case under medium and in the second under low teacher pacing. We decided to distinguish in each case between occasions when the pupils observed together were working with materials in the same or in different content areas. We therefore condensed our "same," "varied within content area," and "common" materials categories to "same," and used "different" to mean materials in different content areas. Thus the subsetting "cluster same" means pupils having different tasks in the same content area with medium teacher pacing, and "contain same" means pupils having different tasks in the same content area with low teacher pacing. The revised subsetting variable therefore has eleven categories.

Table 2.28 shows the distribution of theeleven subsetting categories by program. It turned out that the new category "cluster different" was almost never used, suggesting either an artifact of our coding or, more probably, that the subsetting itself is too irrational to be observed often in the classroom. The section and class subsettings were similarly almost never observed with children using materials in different content areas, presumably because it would be too incompatible with high teacher pacing (expect teacher paced transitions).

The BESIS subsetting variable has been crossed with many other variables in the code. We have consulted these tables from time to time in order to present to the reader statistics relevant to the occurrence of teacher address-behavior, subject-child adaptiveness, and other variables. Let us present just two of the subsetting tables here, to indicate a type of analysis that lies ahead of us.

Table 2.29 shows the distribution of the match of children's address teacher behavior to the expectation that they will address the teacher, by subsettings. It can be noticed first that mismatches occurred 21% of the time spent in tutorial, 29% of the time spent in the section, and 35% of the time spent in the class. This can be attributed largely to the effect of the observed children's having to compete with successively more children in these subsettings in order to address the teacher when teacher address is expected. The percentages are obtained despite the fact that high or continuous teacher address expectations actually occur in the reverse order in these same subsettings, 95% of the time in tutorial, 64% in the section, and 45% in the class. With the exception of group dependent, the teacher address expectations were almost always coded medium or intermittent in the medium teacher paced subsettings, and under this condition either an address or a non-address was always coded as matching the expectation. In the low teacher paced subsettings, the occurrence of mismatches increased from 3% in the partition to 4% in the contain same, 8% in the contain different, and 10% in the group independent. This may have happened, we think, because the children themselves had increasing control over the possibility of making a mismatch in these subsettings, by their successfully soliciting teacher interactions even though the teacher address expectations were low. The data cited earlier on teacher responses to children's solicitations of teacher interaction is consistent with this interpretation, but there is not enough data for us to be confident of it.

Table 2.30 shows the distribution of phase cognitive complexity by subsettings. In the classrooms we observed, skills and concepts learning was emphasized most of all in the tutorial, the cluster same, the section, and the contain same. It was emphasized least in the group independent and

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Table 2.29

ROWS = MATCH ADDRESS COLUMNS = SUBSETTING

	TUTOR-IAL	SECTION	CLASS	ASSIGN	CLUSTER SAME	CLUSTER DIFF	GROUP DEPEN-DENT	PARTI-TION	CONTAIN SAME	CONTAIN DIFF	GROUP INDE-PENDENT	ROW SUMS	KEY
DOES NOT MATCH	36	379	529	5			3	48	23	25	35	1083	RAW
	3.324	34.995	48.846	0.462			0.277	4.432	2.124	2.308	3.232	100.000	RPR
	20.690	28.799	34.757	0.822			4.412	2.842	3.645	7.837	9.615	15.320	RPC
	0.509	5.361	7.483	0.071			0.042	0.679	0.325	0.354	0.495	15.320	RPP
	0.509	5.361	7.483	0.071			0.042	0.679	0.325	0.354	0.495	15.320	RPT
DOES MATCH	132	930	990	601	300	78	65	1640	608	294	329	5967	RAW
	2.212	15.586	16.591	10.072	5.028	1.307	1.089	27.484	10.189	4.927	5.514	100.000	RPR
	75.862	70.669	65.046	98.849	100.000	100.000	95.588	97.099	96.355	92.163	90.335	84.411	RPC
	1.867	13.156	14.005	8.502	4.244	1.103	0.920	23.200	8.601	4.159	4.654	84.411	RPP
	1.867	13.156	14.005	8.502	4.244	1.103	0.920	23.200	8.601	4.159	4.654	84.411	RPT
CANNOT JUDGE	6	7	3	2				1				19	RAW
	31.579	36.842	15.789	10.526				5.263				100.000	RPR
	3.448	0.532	0.197	0.329				0.059				0.269	RPC
	0.085	0.099	0.042	0.028				0.014				0.269	RPP
	0.085	0.099	0.042	0.028				0.014				0.269	RPT
COLUMN SUMS	174	1316	1522	608	300	78	68	1689	631	319	364	7069	RAW
	2.461	18.616	21.531	8.601	4.244	1.103	0.962	23.893	8.926	4.513	5.149	100.000	RPR
	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	RPC
	2.461	18.616	21.531	8.601	4.244	1.103	0.962	23.893	8.926	4.513	5.149	100.000	RPP
	2.461	18.616	21.531	8.601	4.244	1.103	0.962	23.893	8.926	4.513	5.149	100.000	RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE = .117730 E 04 (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 20

Table 2.30

ROWS = PHASE COGNITIVE COMPLEXITY   COLUMNS = SETTING

	TUTOR-IAL	SECTION	CLASS	ASSIGN	CLUSTER SAME	CLUSTER DIFF	GROUP DEPEN-DENT	PARTI-TION	CONTAIN SAME	CONTAIN DIFF	GROUP INDE-PENDENT	ROW SUMS	KEY
RECEIVE INFOR-MATION	17	227	803	53	34			553		39	48	1774	RAW
	0.958	12.796	45.265	2.988	1.917			31.172		2.198	2.706	100.000	RPR
	9.770	17.236	52.760	8.703	11.333			32.683		12.226	13.187	25.078	RPC
	0.240	3.209	11.351	0.749	0.481			7.817		0.551	0.679	25.078	RPP
	0.240	3.209	11.351	0.749	0.481			7.817		0.551	0.679	25.078	RPT
LEARN SKILLS	154	1007	213	199	255	42	19	715	400	101	41	3146	RAW
	4.895	32.009	6.771	6.325	8.105	1.335	0.604	22.727	12.715	3.210	1.303	100.000	RPR
	88.506	76.462	13.995	32.677	85.000	53.846	27.941	42.258	63.391	31.661	11.264	44.473	RPC
	2.177	14.235	3.011	2.813	3.605	0.594	0.269	10.107	5.655	1.428	0.580	44.473	RPP
	2.177	14.235	3.011	2.813	3.605	0.594	0.269	10.107	5.655	1.428	0.580	44.473	RPT
APPLY INFORM& SKILLS		36	51	190			36	91	104	88	166	762	RAW
		4.724	6.693	24.934			4.724	11.942	13.648	11.549	21.785	100.000	RPR
		2.733	3.351	31.199			52.941	5.378	16.482	27.586	45.604	10.772	RPC
		0.509	0.721	2.686			0.509	1.286	1.470	1.244	2.347	10.772	RPP
		0.509	0.721	2.686			0.509	1.286	1.470	1.244	2.347	10.772	RPT
CANNOT JUDGE			10									10	RAW
			100.000									100.000	RPR
			0.657									0.141	RPC
			0.141									0.141	RPP
			0.141									0.141	RPT
N/A	3	47	445	167	11	36	13	333	127	91	109	1382	RAW
	0.217	3.401	32.200	12.084	0.796	2.605	0.941	24.096	9.190	6.585	7.887	100.000	RPR
	1.724	3.569	29.238	27.422	3.667	46.154	19.118	19.681	20.127	28.527	29.945	19.536	RPC
	0.042	0.664	6.291	2.361	0.155	0.509	0.184	4.707	1.795	1.286	1.541	19.536	RPP
	0.042	0.664	6.291	2.361	0.155	0.509	0.184	4.707	1.795	1.286	1.541	19.536	RPT
COLUMN SUMS	174	1317	1522	609	300	78	68	1692	631	319	364	7074	RAW
	2.460	18.617	21.515	8.609	4.241	1.103	0.961	23.919	8.920	4.509	5.146	100.000	RPR
	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	RPC
	2.460	18.617	21.515	8.609	4.241	1.103	0.961	23.919	8.920	4.509	5.146	100.000	RPP
	2.460	18.617	21.515	8.609	4.241	1.103	0.961	23.919	8.920	4.509	5.146	100.000	RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE = .341655 E 04
DEGREES OF FREEDOM = 40
STANDARDIZED CHI SQUARE = -.404442 E 03

the class, though with very different alternatives in the two cases, the class being much more concerned with the exchange of information, and the group independent with the application of information and skills to a complex production. Let us suppose, for reasons that may be too obscure to be communicable just now, that the exchange of information is a most teacher dominative task, the learning of skills and concepts a somewhat less teacher dominative task, and application the least dominative task. Let us then note how these are distributed among the low teacher paced subsettings. Receive information occurs 33% of all time in the partition, 0% of time in the contain same, 12% of time in the contain different, and 13% of time in the group independent. Learn skills and concepts occurs 42% of time in the partition, 63% in the contain same, 32% in the contain different, and 11% in the group independent. Finally, apply information and skills occurs 5% of time in the partition, 16% of time in the contain same, 28% of time in the contain different, and 46% of time in the group independent. These findings suggest, if we can hold to our original assumption, that the partition, contain same, contain different, and group independent, are successively less teacher dominated subsettings. It was to be able to distinguish among low paced subsettings in this manner that we differentiated between the contain same and contain different, anticipating that this would be important for describing significant variations among programs.

Let us re-order the subsettings in the following sequence: class, section, tutorial, assign, cluster, group dependent, partition, contain same, contain different, and group independent. We speculate that this is approximately the order of teacher dominance or teacher intrusiveness in the subsettings. Greater control of the learning situation by the teacher is associated more with the subsettings to the left, and greater control of the learning situation by the pupil is associated more with the subsettings to the right. Moreover, the tendency of most pupils is, we speculate further, to move to the right when a situation is unstable or incongruent, while the tendency of most teachers (qua teachers, i.e., in their role) is to move to the left when the situation is unstable or incongruent. Many of the findings in this report lend credibility to these speculations. Still, this only poses in a different form, rather than answers, the central question of education, how does the tension between teacher and pupil result in learning? It must be assumed that different kinds of learning require greater or lesser degrees of control by the teacher or the pupil, and that this will vary further in relation to individuals. Our study has, deliberately, taken no account yet of what conditions are the most effective for learning. We anticipate that the concept of subsettings will be crucial in this further investigation, because the subsettings can be increasingly specified so as to relate integrally the conditions of learning, in ways that will increasingly correspond to the integrations thatthe teacher and pupil themselves must make to function effectively in learning situations.

This completes the more descriptive part of our report on the analysis of the pupil behavior stream observations. We will turn next to examining further how certain combinations of setting conditions, including the conditions built into the core subsettings, affect autonomous and integrated behavior.

II. Autonomy as a function of various combinations of setting conditions.

This and the remaining sections of our analysis will be written as briefly as possible, though we must present detail about each child here. It is to be hoped that the designs of the tables will speak for themselves. It will become clear quickly that the tables only point in the direction of questions that must be explored with more adequately distributed data collected under more controlled observation conditions.

A. The significance of off-task behavior.

Off-task behavior has been defined structurally by us, as an arrest of, or a departure from, main episode oriented activity. It often happens, not by accident, that off-task behavior is not approved by the teacher, or at least is not encouraged by the teacher. However, we have never asked ourselves, in applying BESIS, whether or not a behavior was approved or not, in order to decide whether or not it was off-task. The question, rather, has always been whether or not it contributed in some way to the maintenance of goal-oriented activity in the main episode channel of the behavior stream, defining the main episodes themselves as those which take priority in the overall organization of the individual's behavior stream. By whatever process, spontaneous or instigated or pressured, a behavior episode has been initiated, the goal toward which the individual's behavior is organized is assumed by us to be the individual's goal, at least, or minimally, to the extent that his behavior is consistent with the goal. If this is circular, it is because we have assumed the goal orientation of organized behavior. Our argument for this can be found in the Fourth Progress Report, especially on pp. 40-43.

The sheer length of episodes, their starting earlier and terminating later relative to other episodes that from time to time run concurrently or alternatively with them, is the surest indication of their priority in the behavior stream. We have already reported our findings on the lengths of the episodes identified by us in the several programs, ranging from 12 to 18 minutes for main episdoes, and from 1½ to 3 minutes for alternative episodes. We will claim that alternative episodes rarely led to significant task completions, although our coding of this was quite unsatisfactory and seems to have been biased toward our recognizing task completion more readily in Bank Street and Open than in Bushell and Engelmann-Becker.

Greene and Logan, in the IRIS study they report in Chapter 4, compared the involvement of children recorded as on-task and off-task by BORIS criteria (not quite the same as the BESIS criteria, but similar enough for the present question). They tested the relationship across all the data, and they tested it in four subsettings separately, those in which there were enough observations to make a valid analysis.

> The analysis of the clusters in terms of on-off task behavior yielded differences in involvement at beyond the .01 level (see Table 10). In each case the involvement was greater during on-task as opposed to off-task behavior. It is clear that when the observed children were fulfilling actual expectations, in a teacher-directed situation (clusters 2 and 3) or teacher-supervised situation (clusters 4 and 5), they were more highly involved than when they were not fulfilling those expectations. It would be difficult for a child in such a teacher-commanded situation to participate in covert off-task behavior for periods of time long enough to develop a constant and high level of involvement. The whole-data analysis yielded the same results. We have, therefore, a very strong indication that on-task behavior is concomitant with high involvement. It seems likely to suppose that off-task behavior is evidenced due to a lack of interest in the expected behavior. (Greene and Logan, 4-31.)

The dynamics of on-task and off-task behavior suggested especially by the last sentence of their analysis is one in which, in the high and medium teacher paced subsettings at least, the children went off-task when a task was less interesting, but were not free to develop the off-task behavior to the point of its becoming competitively involving, and thus returned after a short interval to on-task behavior. Greene and Logan go on to relate involvement also to passive versus active behavior, and conclude, "Clearly, involvement was greater during active behavior." We will be able to add further to this the relationship of on-task and off-task behavior to the types of materials available and to still other conditions, but that is getting ahead of the argument. Our general conclusion here is that off-task behavior signifies relatively low control of the child's behavior, _first of all by the child himself_, in relation to the goals that have priority in his behavior stream during the time we have observed him. Off-task behavior, then, signifies diminished autonomy. Our concern in the analysis that follows will be to examine certain conditions under which the children were expected to exercise control of their behavior, and to trace this diminished autonomy as much as possible to the setting conditions themselves. Only in a frame of reference such as this can one subsequently ask questions that construe autonomy as a relative capacity of individuals to regulate their own behavior in a given subsetting.

Before proceeding, let us register a caveat. We cannot, irrespective of subsetting, equate _degree_ of involvement with _percentage_ of on-task behavior. Greene and Logan's finding that the children they observed were least involved in the high teacher paced subsettings (see Table 9 in Chapter 4) would hardly square with our own finding that children were more on-task in these subsettings than in any other except two, the group dependent and the group independent. (For our own figures, the reader can consult Table 2.31.) As Greene and Logan recognize, on-task behavior results from an interaction between involvement and the opportunities for off-task behavior -- let us say more generally between involvement and the opportunities for alternative behavior, or, finally, the opportunities for the children's actually changing the course of their main episode behavior by exercising options to change their behavior goals. This reasoning has two implications. (1) The tables presented below that show more on-task behavior under high teacher pacing than under low teacher pacing do not necessarily mean that

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TABLE 2

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Table 2.31

ROWS = PHASE VERTICAL (CONDENSED)   COLUMNS = SUBSETTING

	TUTORIAL	SECTION	CLASS	ASSIGN	CLUSTER SAME	CLUSTER DIFF	GROUP DEPENDENT	PARTITION	CONTAIN SAME	CONTAIN DIFF	GROUP INDEPENDENT	ROW SUMS	KEY
ON TASK	164	1199	1371	480	240	61	68	1345	435	273	344	5980	RAW
	2.742	20.050	22.926	8.027	4.013	1.020	1.137	22.492	7.274	4.565	5.753	100.000	RPR
	94.253	91.040	90.079	78.818	80.000	78.205	100.000	79.492	68.938	85.580	94.505	84.535	RPC
	2.318	16.949	19.381	6.785	3.393	0.862	0.961	19.013	6.149	3.859	4.863	84.535	RPP
	2.318	16.949	19.381	6.785	3.393	0.862	0.961	19.013	6.149	3.859	4.863	84.535	RPT
OFF TASK	10	118	151	129	60	17		347	196	46	20	1094	RAW
	0.914	10.786	13.803	11.792	5.484	1.554		31.718	17.916	4.205	1.828	100.000	RPR
	5.747	8.960	9.921	21.182	20.000	21.795		20.508	31.062	14.420	5.495	15.465	RPC
	0.141	1.668	2.135	1.824	0.848	0.240		4.905	2.771	0.650	0.283	15.465	RPP
	0.141	1.668	2.135	1.824	0.848	0.240		4.905	2.771	0.650	0.283	15.465	RPT
COL SUMS	174	1317	1522	609	300	78	68	1692	631	319	364	7074	RAW
	2.460	18.617	21.515	8.609	4.241	1.103	0.961	23.919	8.920	4.509	5.146	100.000	RPR
	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	RPC
	2.460	18.617	21.515	8.609	4.241	1.103	0.961	23.919	8.920	4.509	5.146	100.000	RPP
	2.460	18.617	21.515	8.609	4.241	1.103	0.961	23.919	8.920	4.509	5.146	100.000	RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE = .304032 E 03   (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 10

the children are more involved under high teacher pacing, much less that they must be learning more effectively under this condition. (2) The tables that show more on-task behavior under a given teacher pacing condition, high or medium or low, as a function of combination with other setting conditions, may well suggest differences in involvement, though they are still problematic as to the learning that is occurring under these conditions. That the group dependent and the group independent were both the most involving and the most on-task effecting subsettings in our respective studies is a very suggestive finding. We will refer to it again in the analysis below.

B. On-task and off-task behavior under varied pacing and options conditions.

1. Distributions of on-task/off-task by main episode options (condensed) filtered by teacher pacing. It will be recalled that our on-task/off-task variable is a condensation of phase vertical, the categories "integrated" through "provisioning" (1-8) all being included in on-task, and the categories "passive arrest" (9) and "active alternative" (0) being included in off-task. Table 2.32, on three pages, shows that when episode options were prescribed, the children across all programs were off-task 9% of the time under high teacher pacing, 21% under medium teacher pacing, and 28% under low teacher pacing. When episode options were open, however, the children were off-task 13% under high teacher pacing, 17% under medium teacher pacing, and 13% under low teacher pacing.

The difference between off-task behavior under low teacher pacing when options were prescribed and when they were open was particularly startling to us when we first saw the table, the more so because we thought we understood it. On the other hand, the pattern of off-task for open options alone, under high, medium, and low teacher pacing successively, puzzled

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Table 2.32(i)

DISTRIBUTIONS OF PHASE VERTICAL BY MAIN EPISODE OPTIONS (CONDENSED) FILTERED BY TEACHER PACING

```
         TEACHER PACING = HIGH

         MAIN EPISODE
ROWS = OPTIONS                       COLUMNS = PHASE VERTICAL
       (CONDENSED)                             (CONDENSED)


              ON          OFF             ROW
             TASK         TASK            SUMS   KEY
          |----------|----------|
OPEN      |       177|        25|          202   RAW
CHOICE    |    87.624|    12.376|      100.000   RPR
          |     6.474|     8.961|        6.704   RPC
          |     5.875|     0.830|        6.704   RPP
          |     2.493|     0.352|        2.845   RPT
          |----------|----------|
PRE-      |      2557|       254|         2811   RAW
SCRIBED   |    90.964|     9.036|      100.000   RPR
CHOICE    |    93.526|    91.039|       93.296   RPC
          |    84.866|     8.430|       93.296   RPP
          |    36.014|     3.577|       39.592   RPT
          |----------|----------|
COLUMN          2734         279          3013   RAW
 SUMS         90.740       9.260       100.000   RPR
             100.000     100.000       100.000   RPC
              90.740       9.260       100.000   RPP
              38.507       3.930        42.437   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .250254 E  01
DEGREES OF FREEDOM = 1

YATES CORRECTED CHI SQUARE =  .212079 E  01
```

COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

Table 2.32(ii)

DISTRIBUTIONS OF PHASE VERTICAL BY MAIN EPISODE OPTIONS (CONDENSED) FILTERED BY TEACHER PACING

```
TEACHER PACING = MEDIUM

        MAIN EPISODE
ROWS = OPTIONS                      COLUMNS = PHASE VERTICAL
       (CONDENSED)                            (CONDENSED)

                 ON         OFF            ROW
                TASK        TASK           SUMS   KEY
           |----------|----------|
OPEN       |       345|        70|         415    RAW
CHOICE     |    83.133|    16.867|     100.000    RPR
           |    37.870|    31.818|      36.693    RPC
           |    30.504|     6.189|      36.693    RPP
           |     4.859|     0.986|       5.845    RPT
           |----------|----------|
PRE-       |       566|       150|         716    RAW
SCRIBED    |    79.050|    20.950|     100.000    RPR
CHOICE     |    62.130|    68.182|      63.307    RPC
           |    50.044|    13.263|      63.307    RPP
           |     7.972|     2.113|      10.085    RPT
           |----------|----------|
COLUMN           911         220          1131    RAW
 SUMS         80.548      19.452       100.000    RPR
             100.000     100.000       100.000    RPC
              80.548      19.452       100.000    RPP
              12.831       3.099        15.930    RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .279435 E  01
DEGREES OF FREEDOM = 1

YATES CORRECTED CHI SQUARE =  .253969 E  01
```

```
COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS
```

Table 2.32(iii)

DISTRIBUTIONS OF PHASE VERTICAL BY MAIN EPISODE OPTIONS (CONDENSED)
FILTERED BY TEACHER PACING

```
        TEACHER PACING = LOW

              MAIN EPISODE
ROWS =  OPTIONS                    COLUMNS = PHASE VERTICAL
        (CONDENSED)                          (CONDENSED)

                ON          OFF           ROW
               TASK        TASK          SUMS   KEY
          |---------|----------|
OPEN      |     1374|       204|        1578   RAW
CHOICE    |   87.072|    12.928|     100.000   RPR
          |   58.196|    34.286|      53.383   RPC
          |   46.482|     6.901|      53.383   RPP
          |   19.352|     2.873|      22.225   RPT
          |---------|----------|
PRE-      |      987|       391|        1378   RAW
SCRIBED   |   71.626|    28.374|     100.000   RPR
CHOICE    |   41.804|    65.714|      46.617   RPC
          |   33.390|    13.227|      46.617   RPP
          |   13.901|     5.507|      19.408   RPT
          |---------|----------|
COLUMN        2361         595          2956   RAW
 SUMS        79.871      20.129      100.000   RPR
            100.000     100.000      100.000   RPC
             79.871      20.129      100.000   RPP
             33.254       8.380       41.634   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .109174 E  03                    (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 1

YATES CORRECTED CHI SQUARE =  .108215 E  03    (SIGNIFICANT AT .001 LEVEL)

DEGENERATE PLANE - STATISTICAL OPTIONS SUPPRESSED

***** TABLE TOTALS *****
    RAW=         7100
```

us. The general patterns held up for each of the programs separately, but as we studied them still more specifically by classroom, it became apparent that we had to identify the content of the prescribed and open options in order to understand what the comparisons meant. It was for this purpose that we condensed main episode content into first and second priority content.

2. Distributions of on-task/off-task by teacher pacing filtered by content priority. Let us repeat that first priority content has been defined as reading, writing (including spelling), language, and arithmetic, while second priority content has been defined as science, social studies, art, music, show-and-tell, informal conversation, board and card games, object play (social), fantasy play, object manipulation (alone), and motor game. These definitions do not necessarily mean that first priority content is more important in a grand scheme of things, but rather that it is generally held to be more important in the elementary school, as suggested by its prominence in the curriculum, in tests, in parents' expectations for the schools, and in its being prescribed more for the children we observed than was second priority content (see Table 2.8 above). Table 2.33, on two pages, shows that for first priority content children were off-task 8% of the time under high teacher pacing, 21% under medium teacher pacing, and 27% under low teacher pacing. For second priority content, however, children were off-task 13% of the time under high teacher pacing, 16% under medium teacher pacing, and 10% under low teacher pacing. That the children were off-task slightly less under low teacher pacing than under high teacher pacing for second priority content is as intriguing, again, as that they were off-task less under low teacher pacing for second priority content than for first priority content, especially considering the large numbers of ob-

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Table 2.33(i)

```
              MAIN    FIRST
           EPISODE =  PRIOR-                              CHILDREN = ALL
           CONTENT    ITY

ROWS = TEACHER PACING           COLUMNS = PHASE VERTICAL
                                          CONDENSED

               ON          OFF             ROW
              TASK         TASK            SUMS   KEY
          |----------|----------|
  HIGH    |      1908|       160|          2068   RAW
          |    92.263|     7.737|       100.000   RPR
          |    50.516|    20.408|        45.341   RPC
          |    41.833|     3.508|        45.341   RPP
          |    27.257|     2.286|        29.543   RPT
          |----------|----------|
  MEDIUM  |       621|       165|           786   RAW
          |    79.008|    20.992|       100.000   RPR
          |    16.442|    21.046|        17.233   RPC
          |    13.615|     3.618|        17.233   RPP
          |     8.871|     2.357|        11.229   RPT
          |----------|----------|
  LOW     |      1248|       459|          1707   RAW
          |    73.111|    26.889|       100.000   RPR
          |    33.042|    58.546|        37.426   RPC
          |    27.362|    10.064|        37.426   RPP
          |    17.829|     6.557|        24.386   RPT
          |----------|----------|
  COLUMN        3777         784           4561   RAW
   SUMS       82.811      17.189        100.000   RPR
             100.000     100.000        100.000   RPC
              82.811      17.189        100.000   RPP
              53.957      11.200         65.157   RPT

  STATISTICS BASED ON RAW FREQUENCY

  CHI SQUARE =  .250622 E  03                   (SIGNIFICANT AT .001 LEVEL)
  DEGREES OF FREEDOM = 2
```

servations in the relevant cells. Still, the picture is incomplete until both content priority and options are related to off-task behavior under different teacher pacing conditions.

3. Distributions of on-task/off-task by teacher pacing filtered by main episode options (condensed) and by content priority. Table 2.34, on four pages, shows that when first priority content was prescribed, children were off-task 8% of the time under high teacher pacing, 23% under medium teacher pacing, and 31% under low teacher pacing. This is the most attenuated form of this distribution that we have obtained yet. When first priority content was elected, the children were off-task 11% of the time under high teacher pacing, 11% under medium teacher pacing, and 19% under low teacher pacing. Thus for medium and low teacher pacing, options seems to have made a substantial difference even within first priority content, though we must raise some further questions about it in our discussion below.

Taking into account the relatively few observations in some of the cells involved, it is simplest to conclude from the second priority content tables that there is no evidence in them that either teacher pacing or options was contributing systematically to differences in off-task behavior. As one gets closer to the particular situations involved, of course, teacher pacing and options did make a difference in various ways, but these ways cancel each other out as one tries to generalize about them in the manner of the tables.

Table 2.35, on three pages, tests the significance of the options variable directly for each teacher pacing condition in first priority content. Simply to rest an argument with these tables would be very misleading. The observations are quite unevenly distributed among the 16 children, and in

COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
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Table 2.33(ii)

```
                    MAIN    SECOND
                  EPISODE = PRIOR-                          CHILDREN = ALL
                  CONTENT   ITY

ROWS = TEACHER PACING          COLUMNS = PHASE VERTICAL
                                         CONDENSED

                 ON          OFF            ROW
                TASK         TASK           SUMS   KEY
            |----------|----------|
  HIGH      |       814|       119|          933   RAW
            |    87.245|    12.755|      100.000   RPR
            |    37.913|    40.753|       38.253   RPC
            |    33.374|     4.879|       38.253   RPP
            |    11.629|     1.700|       13.329   RPT
            |----------|----------|
  MEDIUM    |       283|        53|          336   RAW
            |    84.226|    15.774|      100.000   RPR
            |    13.181|    18.151|       13.776   RPC
            |    11.603|     2.173|       13.776   RPP
            |     4.043|     0.757|        4.800   RPT
            |----------|----------|
  LOW       |      1050|       120|         1170   RAW
            |    89.744|    10.256|      100.000   RPR
            |    48.905|    41.096|       47.970   RPC
            |    43.050|     4.920|       47.970   RPP
            |    15.000|     1.714|       16.714   RPT
            |----------|----------|
  COLUMN          2147         292          2439   RAW
   SUMS         88.028      11.972       100.000   RPR
               100.000     100.000       100.000   RPC
                88.028      11.972       100.000   RPP
                30.671       4.171        34.843   RPT

  STATISTICS BASED ON RAW FREQUENCY

  CHI SQUARE =  .841786 E  01                      (SIGNIFICANT AT .051 LEVE
  DEGREES OF FREEDOM = 2

  ***** TABLE TOTALS *****
       RAW=          7000
```

COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

O.C.

Table 2.34(i)

```
                     MAIN   FIRST                                 MAIN EPISODE   PRE-
                  EPISODE = PRIOR-     CHILDREN =ALL                  OPTIONS = SUBJECT
                  CONTENT   ITY                                   [illegible]

   ROWS = TEACHER PACING         COLUMNS = PHASE VERTICAL
                                           CONDENSED

                  ON         OFF          ROW
                 TASK        TASK         SUMS   KEY
              |----------|----------|
     HIGH     |      1782|       145|     1927   RAW
              |    92.475|     7.525|  100.000   RPR
              |    59.242|    23.237|   53.056   RPC
              |    49.064|     3.992|   53.056   RPP
              |    25.648|     2.087|   27.735   RPT
              |----------|----------|
     MEDIUM   |       488|       148|      636   RAW
              |    76.730|    23.270|  100.000   RPR
              |    16.223|    23.718|   17.511   RPC
              |    13.436|     4.075|   17.511   RPP
              |     7.024|     2.130|    9.154   RPT
              |----------|----------|
     LOW      |       738|       331|     1069   RAW
              |    69.036|    30.964|  100.000   RPR
              |    24.535|    53.045|   29.433   RPC
              |    20.319|     9.113|   29.433   RPP
              |    10.622|     4.764|   15.386   RPT
              |----------|----------|
     COLUMN        3008        624       3632   RAW
      SUMS        82.819     17.181   100.000   RPR
                 100.000    100.000   100.000   RPC
                  82.819     17.181   100.000   RPP
                  43.293      8.981    52.274   RPT

     STATISTICS BASED ON RAW FREQUENCY

     CHI SQUARE =  .285568 E  03                        (SIGNIFICANT AT .001 LE
     DEGREES OF FREEDOM = 2
```

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS
                              Table 2.34 (ii)

                     MAIN     FIRST       CHILDREN = ALL      MAIN EPISODE
                EPISODE = PRIOR-                               OPTIONS = OPEN
                CONTENT    ITY                               CONDENSED   CHOICE

ROWS = TEACHER PACING         COLUMNS = PHASE VERTICAL
                                        CONDENSED


                ON          OFF             ROW
               TASK        TASK            SUMS   KEY
             |----------|----------|
   HIGH      |       126|        15|        141   RAW
             |    89.362|    10.638|    100.000   RPR
             |    17.143|    10.345|     16.023   RPC
             |    14.318|     1.705|     16.023   RPP
             |     1.813|     0.216|      2.029   RPT
             |----------|----------|
   MEDIUM    |       133|        17|        150   RAW
             |    88.667|    11.333|    100.000   RPR
             |    18.095|    11.724|     17.045   RPC
             |    15.114|     1.932|     17.045   RPP
             |     1.914|     0.245|      2.159   RPT
             |----------|----------|
   LOW       |       476|       113|        589   RAW
             |    80.815|    19.185|    100.000   RPR
             |    64.762|    77.931|     66.932   RPC
             |    54.091|    12.841|     66.932   RPP
             |     6.851|     1.626|      8.477   RPT
             |----------|----------|
   COLUMN          735         145          880   RAW
    SUMS        83.523      16.477      100.000   RPR
               100.000     100.000      100.000   RPC
                83.523      16.477      100.000   RPP
                10.579       2.087       12.666   RPT

   STATISTICS BASED ON RAW FREQUENCY

   CHI SQUARE =  .951502 E  01                  (SIGNIFICANT AT .01  LEVEL)
   DEGREES OF FREEDOM = 2
```

```
COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS
```

Table 2.34(iii)

```
                    MAIN    SECOND    CHILDREN = ALL    MAIN EPISODE   PRE-
                EPISODE = PRIOR-                           OPTIONS =  SCRIBED
                CONTENT   ITY                            CONDENSED   CHOICE

ROWS = TEACHER PACING          COLUMNS = PHASE VERTICAL
                                         CONDENSED


                   ON          OFF              ROW
                  TASK        TASK             SUMS   KEY
             |----------|----------|
    HIGH     |       765|       109|            874   RAW
             |    87.529|    12.471|        100.000   RPR
             |    74.416|    78.986|         74.957   RPC
             |    65.609|     9.348|         74.957   RPP
             |    11.010|     1.569|         12.579   RPT
             |----------|----------|
    MEDIUM   |        71|          |             71   RAW
             |   100.000|          |        100.000   RPR
             |     6.907|          |          6.089   RPC
             |     6.089|          |          6.089   RPP
             |     1.022|          |          1.022   RPT
             |----------|----------|
    LOW      |       192|        29|            221   RAW
             |    86.878|    13.122|        100.000   RPR
             |    18.677|    21.014|         18.954   RPC
             |    16.467|     2.487|         18.954   RPP
             |     2.763|     0.417|          3.181   RPT
             |----------|----------|
    COLUMN          1028        138            1166   RAW
     SUMS         88.165     11.835         100.000   RPR
                 100.000    100.000         100.000   RPC
                  88.165     11.335         100.000   RPP
                  14.796      1.986          16.782   RPT

    STATISTICS BASED ON RAW FREQUENCY

    CHI SQUARE =  .102207 E  02                      (SIGNIFICANT AT .011 LEVEL
    DEGREES OF FREEDOM = 2

    ***** TABLE TOTALS *****
          RAW=         6948
```

```
COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

O.C.                                   Table 2.34(iv)

                    MAIN    SECOND     CHILDREN = ALL     MAIN EPISODE
                 EPISODE = PRIOR-                           OPTIONS = OPEN
                 CONTENT   ITY                            CONDENSED   CHOICE

      ROWS = TEACHER PACING        COLUMNS = PHASE VERTICAL
                                             CONDENSED

                   ON          OFF            ROW
                   TASK        TASK           SUMS   KEY
               |----------|----------|
       HIGH    |        49|        10|        59   RAW
               |    83.051|    16.949|   100.000   RPR
               |     4.391|     6.494|     4.646   RPC
               |     3.858|     0.787|     4.646   RPP
               |     0.705|     0.144|     0.849   RPT
               |----------|----------|
       MEDIUM  |       212|        53|       265   RAW
               |    80.000|    20.000|   100.000   RPR
               |    18.996|    34.416|    20.866   RPC
               |    16.693|     4.173|    20.866   RPP
               |     3.051|     0.763|     3.814   RPT
               |----------|----------|
       LOW     |       855|        91|       946   RAW
               |    90.381|     9.619|   100.000   RPR
               |    76.613|    59.091|    74.488   RPC
               |    67.323|     7.165|    74.488   RPP
               |    12.306|     1.310|    13.615   RPT
               |----------|----------|
       COLUMN         1116        154       1270   RAW
        SUMS        87.874     12.126    100.000   RPR
                   100.000    100.000    100.000   RPC
                    87.874     12.126    100.000   RPP
                    16.062      2.216     18.279   RPT

       STATISTICS BASED ON RAW FREQUENCY

       CHI SQUARE =  .222850 E  02                  (SIGNIFICANT AT .001 LEVE
       DEGREES OF FREEDOM = 2
```

COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

Table 2.35(i)

```
                                                          MAIN     FIRST
                                CHILDREN = ALL          EPISODE = PRIOR-
    TEACHER PACING = HIGH                               CONTENT    ITY

           MAIN EPISODE
    ROWS = OPTIONS                  COLUMNS = PHASE VERTICAL
           CONDENSED                          CONDENSED


                    ON         OFF            ROW
                   TASK        TASK           SUMS  KEY
              |----------|----------|
    OPEN      |       126|        15|          141  RAW
    CHOICE    |    89.362|    10.638|      100.000  RPR
              |     6.604|     9.375|        6.818  RPC
              |     6.093|     0.725|        6.818  RPP
              |     1.813|     0.216|        2.029  RPT
              |----------|----------|
    PRE-      |      1782|       145|         1927  RAW
    SCRIBED   |    92.475|     7.525|      100.000  RPR
    CHOICE    |    93.396|    90.625|       93.182  RPC
              |    86.170|     7.012|       93.182  RPP
              |    25.648|     2.087|       27.735  RPT
              |----------|----------|
    COLUMN          1908         160          2068  RAW
     SUMS         92.263       7.737       100.000  RPR
                 100.000     100.000       100.000  RPC
                  92.263       7.737       100.000  RPP
                  27.461       2.303        29.764  RPT

    STATISTICS BASED ON RAW FREQUENCY

    CHI SQUARE =  .178440 E  01
    DEGREES OF FREEDOM = 1

    YATES CORRECTED CHI SQUARE =  .137487 E  01
```

```
COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS
```

Table 2.35(ii)

```
                                                        MAIN     FIRST
      TEACHER PACING = MEDIUM        CHILDREN = ALL    EPISODE = PRIOR-
                                                        CONTENT    ITY

           MAIN EPISODE
   ROWS =  OPTIONS                  COLUMNS = PHASE VERTICAL
           CONDENSED                          CONDENSED


                 ON         OFF           ROW
                TASK        TASK          SUMS   KEY
             |----------|----------|
   OPEN      |       133|        17|       150   RAW
   CHOICE    |    88.667|    11.333|   100.000   RPR
             |    21.417|    10.303|    19.084   RPC
             |    16.921|     2.163|    19.084   RPP
             |     1.914|     0.245|     2.159   RPT
             |----------|----------|
   PRE-      |       488|       148|       636   RAW
   SCRIBED   |    76.730|    23.270|   100.000   RPR
   CHOICE    |    78.583|    89.697|    80.916   RPC
             |    62.087|    18.830|    80.916   RPP
             |     7.024|     2.130|     9.154   RPT
             |----------|----------|
   COLUMN          621        165         786   RAW
    SUMS         79.008     20.992     100.000   RPR
                100.000    100.000     100.000   RPC
                 79.008     20.992     100.000   RPP
                  8.938      2.375      11.313   RPT

   STATISTICS BASED ON RAW FREQUENCY

   CHI SQUARE =  .104278 E  02                  (SIGNIFICANT AT .011 LEVE
   DEGREES OF FREEDOM = 1

   YATES CORRECTED CHI SQUARE =  .972051 E  01   (SIGNIFICANT AT .011 LEVE
COLUMBIA CLASSROOMS ENVIRENMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

                              Table 2.35(iii)

                                                          MAIN    FIRST
        TEACHER PACING = LOW        CHILDREN = ALL      EPISODE = PRIOR-
                                                        CONTENT   ITY

          MAIN EPISODE
   ROWS = OPTIONS                  COLUMNS = PHASE VERTICAL
          CONDENSED                          CONDENSED


                 ON         OFF          ROW
                TASK        TASK         SUMS   KEY
          |-----------|-----------|
 OPEN     |        476|        113|       589   RAW
 CHOICE   |     80.815|     19.185|   100.000   RPR
          |     39.209|     25.450|    35.525   RPC
          |     28.709|      6.815|    35.525   RPP
          |      6.851|      1.626|     8.477   RPT
          |-----------|-----------|
 PRE-     |        738|        331|      1069   RAW
 SCRIBED  |     69.036|     30.964|   100.000   RPR
 CHOICE   |     60.791|     74.550|    64.475   RPC
          |     44.511|     19.964|    64.475   RPP
          |     10.622|      4.764|    15.386   RPT
          |-----------|-----------|
 COLUMN           1214         444       1658   RAW
  SUMS          73.221      26.779    100.000   RPR
               100.000     100.000    100.000   RPC
                73.221      26.779    100.000   RPP
                17.473       6.390     23.863   RPT

  STATISTICS BASED ON RAW FREQUENCY

  CHI SQUARE =  .268690 E  02                   (SIGNIFICANT AT .001 LEVEL
  DEGREES OF FREEDOM = 1

  YATES CORRECTED CHI SQUARE =  .262717 E  02   (SIGNIFICANT AT .001 LEVEL

  DEGENERATE PLANE - STATISTICAL OPTIONS SUPPRESSED
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no individual case is there a clear test of the effects of options on the children's behavior. Table 2.36 presents the essential statistics for each child: the number of 30 second intervals the child spent in first priority content activity under high, medium, and low teacher pacing, the number of these intervals that were coded off-task, and the off-task percentages of the total intervals. Of those 5 children for whom there are at least 20 intervals in the comparison cells under medium or low teacher pacing, in only one case, Bushell #2 boy, does the ratio of open choice off-task to prescribed choice off-task appear to contradict the general finding that open choice activity resulted in less off-task behavior than prescribed choice activity under these pacing conditions. It will be seen below that this boy's "open" activity did not, in fact, conform to his choice. At the same time, qualifications must also be placed on the comparability of some of the contents of the four cases in which the comparison does appear to support the general finding, Bank Street #1 boy, Bank Street #2 boy, Bushell #1 boy, and Engelmann-Becker #1 girl. Finally, the comparison simply cannot be made for the remaining 11 children, although their percentages of off-task behavior under one or another condition have contributed to the general finding.

We think this argues very strongly for an experimental design that would permit the observation of children with different classroom histories under adequately contrasted conditions of teacher pacing and options. It was the purpose of this pilot study simply to specify these conditions, in anticipation of such a design. Let us comment here on what seems to be involved in teacher pacing and options. We will then discuss each child, though only cursorily, one at a time.

The most parsimonious explanation of the pacing effect obtained with first priority content is its coerciveness. The fact that a systematic effect

Table 2.36: First Priority Content Episode Intervals, Off-task Intervals, and % Off-task, by Teacher Pacing and Child.

Pacing	Choice	BS #1 G	BS #1 B	BS #2 G	BS #2 B	B #1 G	B #1 B	B #2 G	B #2 B	EB #1 G	EB #1 B	EB #2 G	EB #2 B	O #1 G	O #1 B	O #2 G	O #2 B	ALL	
HIGH Pacing	Open Choice	66	49	--	3	--	--	--	--	--	--	--	12	9	--	--	2	141	Episode Intervals (on-and-off-task)
		7	6	--	0	--	--	--	--	--	--	--	2	0	--	--	0	15	Off-task Intervals
		11%	12%	--	0%	--	--	--	--	--	--	--	17%	0%	--	--	0%	11%	% Off-task
	Prescribed Choice	44	23	178	222	19	23	22	29	297	296	209	281	158	50	5	71	1927	Episode Intervals
		2	1	6	20	0	1	3	5	27	18	4	42	5	9	5	2	145	Off-task Intervals
		5%	4%	3%	9%	0%	4%	14%	17%	9%	6%	2%	15%	3%	18%	0%	3%	8%	% Off-task
MEDIUM Pacing	Open Choice	10	1	12	--	--	8	--	54	2	--	--	--	--	29	34	--	150	Episode Intervals
		0	0	0	--	--	3	--	14	0	--	--	--	--	0	0	--	17	Off-task Intervals
		0%	0%	0%	--	--	38%	--	25%	0%	--	--	--	--	0%	0%	--	11%	% Off-task
	Prescribed Choice	--	--	2	19	3	5	276	206	11	10	5	29	21	5	2	42	636	Episode Intervals
		--	--	0	2	0	1	58	45	2	4	0	2	19	0	0	15	148	Off-task Intervals
		--	--	0%	11%	0%	20%	21%	22%	18%	40%	0%	7%	90%	0%	0%	36%	23%	% Off-task
LOW Pacing	Open Choice	156	66	89	57	--	49	--	--	77	--	12	--	65	9	1	8	589	Episode Intervals
		32	7	15	8	--	3	--	--	4	--	8	--	36	0	0	0	113	Off-task Intervals
		21%	11%	17%	14%	--	6%	--	--	5%	--	67%	--	55%	0%	0%	0%	19%	% Off-task
	Prescribed Choice	11	23	--	71	183	166	--	--	32	154	140	88	--	130	--	66	1069	Episode Intervals
		4	4	--	22	52	69	--	--	8	27	33	41	--	59	--	12	331	Off-task Intervals
		36%	17%	--	31%	28%	42%	--	--	25%	18%	24%	47%	--	45%	--	18%	31%	% Off-task

appears only with first priority content suggests simply that the contents which represent first priority for adults less often represent first priority for the children. As the teacherpacing lessens, the opportunities for off-task behavior increase. Construing the options variable very narrowly, we can hypothesize that merely giving the children control over the time when they initiate or terminate a first priority activity under a given teacher pacing condition might enable the children to find a better match to the physical and psychic energy they have available, or that they budget, for expenditure on the psychologically more work-like activities of their day. Our using the term "Budget," however, especially signals that one does not simply expect children to regulate their activity instinctively toward the end of balancing different priorities in their activity. Like the balancing of one's diet, this ordering of one's activity must be learned, and it is the occurrence or non-occurrence of this learning that, in part, an experimental design would enable us to look for. If it should be found that experience with ordering priorities in relation to effort did in fact contribute generally to the ability and disposition to do so, still this generalization would unquestionably apply differently to different individuals. We have no doubt that there is much to learn from both the more prescriptive and the more open programs about the rational ordering of children's activity inthe classroom.

Our reasoning so far stresses only the timing of children's activities, or the matching of their energies to tasks of different priorities, a key aspect of the physical order of learning environments. It is further possible that options involves some selection of appropriate knowledge and social conditions under which to pursue a given task. "Appropriate" knowledge conditions, in school, assumes that the individual is learning, or that there is some discrepancy between the requirements of a task and the knowledge (in the most general sense) that the individual brings to the task. School is, of course, a cultural invention, this definition of "appropriateness" is a cultural invention, and again one does not expect children to select appropriate knowledge conditions instinctively. To us it seems possible that sheer involvement, while it signifies that an appropriate match of some sort has been made, does not necessarily signify that a match is appropriate from the standpoint of new learning that results by the school's criteria of knowledge. Perhaps, as Kohlberg has argued, involvement is a necessary but not a sufficient condition for this learning to result. This question would have to be addressed directly in any experimental design we proposed for the next phase of our inquiry into children's regulation of their learning. We have only superficially hinted at this aspect of the knowledge order in our discussion below of the 16 individual cases in the present study.

The individual's selecting the materials or sources from which he is to receive feedback in a given activity might be another aspect of the knowlege order that would be affected by the options he has. The materials feedback relationships examined in Section II D below would relate to this, although we have so far only examined systematically the effects of the children's having high or low feedback material on on-task behavior in first priority content, not how these materials were selected.

Finally, options could entail also the child's having control over the social conditions of his activity, especially the possibilities for interaction with other children. This is discussed in Section II E below, and commented on in relation to some of the individual cases that we will now present next.

The individual sketches that follow Section II E simply try to account for the children's use of their first priority time. They have not been written to represent the quintessence of our understanding of these children at this time, but to provide some of the information that the reader must have to grasp both the significance and the limitations of our general tables. (Section II C of the analysis follows the individual cases that are presented next.)

Bank Street #1 girl, Bonnie (code name), accounts for 26% of all the observations in low teacher paced, open choice, first priority content. During the 78 minutes she wrote three short compositions, conducted very aggressively an arithmetic flash cards game with two other children, and participated in a spelling competition with two children. All of these activities were initiated as fully open options by the child and her co-participants, seemingly without their having been suggested by the teacher on the day observed. Bonnie's off-task behavior in low teacher paced open choice activity occurred mainly in the writing episodes, and most often took the form of looking up at an incident in the room, or inspecting another child's work and, sometimes, questioning the child or a teacher present about it. The few intervals of low teacher paced prescribed choice represent two occasions when the teacher had left a teacher directed activity, during which time the girl was coded in passive arrest for several intervals. (The numbers involved in the latter case are trivial here, but they do point up one of the sources of off-task behavior in a teacher dependent activity.) Bonnie went to a reading area for 5 minutes and alternately paged through a book occasionally reading the pages, and responded to questions from the teacher in the area, coded medium teacher paced open choice. Bonnie accounts for 47% of all observations of high teacher paced, open choice first priority content. Both she and Bank Street #1 boy responded to the teacher's invitation to all children who needed to "work on their 10's" to join an arithmetic section. Both children also listened to the teacher read a story (part of this observation for the boy was not recorded and thus not coded), for 22 minutes of high teacher paced, prescribed first priority content.

Bank Street #1 boy, Bill, spent a total of 45 minutes in low teacher paced activities, 33 minutes of this open choice and 12 minutes prescribed choice. Under open options Bill chose to play a word game for 8 minutes and to work in his Stern math workbook 25 minutes. During the card game, with other children, he was never coded in passive arrest nor in an alternative episode. While working in the math workbook he spent four minutes gazing around the room or resting.

In the low-paced but prescribed subsetting Bill was engaged in helping a girl copy some writing off the board by spelling the words for her. This episode was coded prescribed options because the teacher had signalled that the children should prepare for the end of the day. Whether or not Bill's helping the girl finish her task should have been coded "prescribed" represents an ambiguity in our coding.

Bill spent no time in medium-paced first priority subsettings. Bill spent one long episode, 25 minutes, in a high-paced open choice subsetting. The teacher stated that whoever wanted could come work with her on math. Bill elected to join the teacher in a recitation at the blackboard. He was off-task 12% of the time. The high-paced prescribed choice intervals consisted of two episodes: listening to a story and discussion of the use of an apostrophe. He was off-task for only one interval during these two episodes.

The Bank Street #2 girl, Diane, spent 89 minutes in high teacher paced activities. All of them were coded prescribed choice. 56 minutes of this time is accounted for by the opening discussion led by the teacher. The teacher held an open discussion for 11 minutes, introduced the new spelling words for 7 minutes, had the children read a blackboard story about the cupcakes they would make tomorrow for 12 minutes, talked about the necessary ingredients for the cooking for nine minutes, taught the 'sm' blend for 14 minutes, and finally had the class read the assignments for the day. During this 56 minute episode Diane was off-task for only three minutes.

In the afternoon Diane listened to a story and participated in a discussion afterwards for 31 minutes. She was off-task for two minutes during this episode. Finally there was a brief four minute meeting for choosing activities in the afternoon, and Diane was not off-task.

Diane spent only 6 minutes in medium teacher paced open options activity. The teacher had written a series of questions that could be answered by reading a graph the class had made previously. The entire episode lasted 16 minutes. An aide worked with Diane and another girl for six of these 16 minutes and Diane was not off-task.

Diane spent 45 minutes in low teacher paced activity. All of this was coded either choice of prescribed or open options. She copied a story and filled in the missing words for nine minutes and was off-task for one minute. She spent 20 minutes drawing pictures of words beginning with the 'sm' blend. During this episode she went to the bathroom. This six minute episode, which was coded as a separate episode in other similar situations, accounts for all but a minute and a half of all her off-task behavior in low teacher paced open options subsettings. Diane also read in a Bank Street basal reader for six minutes, and answered the above mentioned graph questions for 10 minutes. Only the graph questions were coded open options. For these last two episodes Diane was not off-task. Diane, in summation, spent her first priority time in either high teacher paced prescribed options or low teacher paced open options. In both situations she was rarely off-task.

Bank Street #2 boy, Danny, spent a total of 64 minutes in low teacher paced activities, 29 with open options and 35 with prescribed options. Under open options Danny had a choice of prescribed tasks. This affected first of all the order of the prescribed tasks. Since he also had the options of following these tasks with an elected activity, or spacing out the tasks over a longer time, the rate of his activity was affected as well. First he copied a story off the blackboard which had several words left out for him to fill in, and then he drew a picture for several words beginning with the 'sm' blend. He was off-task at scattered moments for a total of four minutes during the story copying. Most of this time was used to try to help his friend who was doing the same thing.

The low paced prescribed options activity Danny engaged in was a math lesson lasting 32 minutes. He had to write numbers from zero to over one hundred by fives. He had great difficulty and was off-task for 11 minutes. This off-task behavior consisted mostly of watching the teacher help other children doing the same thing. For the remainder of time spent in low teacher paced prescribed options subsettings, Danny was copying a story off the blackboard. He was not off-task during these four minutes.

Danny spent 10 minutes in medium teacher paced subsettings, all of which had prescribed options. During this time Danny was reading to the teacher from a Bank Street basal reader. He was off-task for one minute when the teacher was interrupted by another child.

Danny spent 113 minutes in high-teacher paced activities. All but 2 minutes were coded prescribed options. 56 minutes were spent in the opening discussion. The teacher held an open discussion period for 10 minutes, introduced new spelling words for 7, had the children read a story on the blackboard, taught the class the 'sm' blend, and had them read the list of prescribed activities for the day. During the entire episode, Danny was off-task for only 1 minute. Later in the day the teacher read the class a story and conducted a discussion afterwards. Danny was off-task for one minute, and the lesson lasted 19 minutes. Another 15 minutes was spent in a meeting held to help the children choose an activity for the remainder of the day.

Danny was off-task for 5 minutes of this 15 minute episode. Finally, an additional 22 minutes of the above mentioned math lesson was high teacher paced. Danny was off-task for three minutes, mostly when the teacher attended to other children.

Bushell #1 girl, April, was observed 96 minutes with an arithmetic workbook, a reading workbook, and the SRA reading laboratory, under prescribed first priority, low teacher paced conditions. During this time she completed 6 pages of the arithmetic workbook, several pages of the reading workbook, and an SRA booklet. When she was working, she seemed to be fairly involved, particularly in the two reading activities, when she reacted a number of times with puzzlement or exclamation over the material. However,in the first two activities she frequently turned away from her work, sometimes spontaneously and sometimes on instigation, to converse and joust with other children at her table. April became increasingly fidgety, and was almost continuously off-task for the last 40% of her reading workbook time. During the show-and-tell period that followed, she got involved in a conflict which resulted, to her satisfaction, in her being seated at a different table for the SRA activity that followed next. She worked steadily at this table, with just one other child present, until close to the end of the period. The 10 minutes of high teacher paced prescribed activity recorded for April occurred as a phonics lesson at the outset of the reading workbook activity.

Bushell #1 boy, Art, was observed 83 minutes with an arithmetic workbook, a reading workbook, and SRA reading. During this time he completed two and a part pages of arithmetic, two and a part pages of the reading workbook, and most of an SRA reading card. Art was seated at the same table as April, but at the opposite end. Except for a brief tutorial and one interval of 8 minutes he was regularly engaged in social talk with the others at the table, especially a child sitting next to him. The 8 minute exception to this was a section of the arithmetic episode, when he got a ruler, not prescribed for the activity, and with it made a paper ruler of his own, which he then used to answer a set of workbook questions. The boy's 25 minutes in low teacher paced open choice activity was his playing intensely with a "sign and ticket" printing game he had brought for the back-up period. About half of the time was spent in his coordinating several other children in sorting the letters and numbers into their proper places so that they could be retrieved efficiently, and the second half he spent printing his name. This is the activity which we have referred to before as resulting in some conspicuous social learning for the child. Our coding it first priority content might be questionable, in so far as reading and writing were subordinate to the social and physical aspects of the activity. One might, however, say much the same about the "real" first priority content he engaged in, and one must ask what the printing might have become for this boy had he been encouraged to develop it. Let us cite one incident not included in the coded record. We happened to have observed Art systematically for a half hour the previous day in a mathematics laboratory outside the classroom. This was not part of the Bushell program, but we followed the class there during our observation of the head teacher. Art worked steadily with a simple desk calculator, fairly quickly abandoning the worksheet sequence of problems that he had been given by the math lab teacher, and playing with the machine in his own way. This is consistent with a finding discussed below, that Art was much more on-task with high feedback materials than with low feedback materials in first priority content.

Bushell #2 girl, Grace, accounts for 43% of all our observations of medium teacher paced, prescribed first priority content. In 27 minutes of medium teacher paced arithmetic workbook activity, Grace completed 4 pages. In 26 minutes of reading, she completed first a worksheet and then three and a part pages in a Sullivan workbook. She completed 4 and a part pages in a spelling and handwriting workbook in a morning writing activity that lasted

30 minutes, and she completed 2 more pages in this workbook and also copied the day's homework assignment from the board, sentences and a list of missing words, in another 55 minutes of writing in the afternoon. The 11 minutes of high teacher paced, prescribed first priority activity recorded for Grace consisted of episode phases in which the teacher provided initial directions for two of these activities, and also a 6 minute spelling test. Grace conversed with a friend at her table from time to time during these activities, usually to compare where they were in their workbooks, and twice to point out to each other the copying that they had yet to do from the board. This interaction seemed to be generally supportive of on-task behavior. Grace's off-task behavior more often took the form of just watching what was happening elsewhere at the table or in the room, almost rhythmically, like taking a break periodically, when her work was progressing well, but for longer intervals when she was having difficulty. On one occasion Grace tried to get help on a spelling exercise from another child, and he showed her the correct answer in his book. However, it did not solve her problem. The incident occurred midway through a 10 minute interval that contained the only sustained instruction from a teacher, other than direction giving, that Grace received in first priority content that day. The situation started with Grace's asking a teacher for help on an exercise that required her making words with the stem "-all". In three successive brief tutorials, Grace did not make progress with the task. On several occasions earlier in the day, still briefer exchanges between Grace and a teacher did uncover misconceptions in Grace's thinking, but the teacher usually succeeded in eliciting a correct response after one or two further questions, following which Grace was reinforced with tokens.

Greg, Bushell #2 boy, completed 6 pages in his Sullivan reader during a 22 minute period. He spent 30 minutes with a spelling and writing workbook, but we have a record of only the first 15 minutes, during which he completed 3 pages. In 33 minutes Greg completed 3 and a part pages in an arithmetic workbook. And in 32 minutes he completed 3 more pages in his spelling and writing workbook. Greg's on-task behavior was uneven during these episodes. He completed 4 pages in the Sullivan reader rather rapidly through steady application, but at this point he counted up the four tokens he had received, displayed them to another child, and lapsed into gazing around for several minutes before completing 2 more pages. In the writing that followed he was highly on-task, but in the arithmetic, the back-up activity, and the further writing that followed in this order, Greg's off-task behavior increased steadily until it was occurring at a rate exceeding on-task behavior. Greg's back-up activity accounts for his 27 minutes in medium teacher paced, open choice first priority content. He chose to work in a workbook, and wanted to use his spelling and handwriting workbook. Neither he nor the teacher could find it at this point, however, so Greg was given instead the arithmetic workbook that he had just been using. He had in fact been having a lot of difficulty with the math, and most of his answers appeared to be wrong. However, the teacher had periodically come over to erase the wrong answers and get him started again with correct responses. He seems to have wanted to use the spelling and handwriting book in the back-up in order to earn more tokens, but he got somewhat less help with the arithmetic workbook this time, a poor competitor with other near-by activity. The afternoon got off to a bad start with the spelling test, for which he tried to copy the answers of another child. He worked hard at copying from the board, but this was followed by a phonics exercise similar to the one Grace was having difficulty with, and when it presented even greater obstacles to Greg, he refused to continue the activity or to take up an alternative workbook that was suggested by the teacher. Like Art, Greg was considerably more on-task during the times when he was working with high feedback materials, the Sullivan reader, the handwriting sections of the spelling and handwriting workbook, and copying his homework assignment from the board.

The Open #1 girl, Rhonda, spent only 33 minutes in low teacher paced, first priority activities. The entire time is accounted for by one open options episode. Rhonda made a notebook from several sheets of loose paper and wrote a three line story in it. During this episode she was off-task for a total of 18 minutes. She played with a stack of computer print out paper, frequently engaged in short conversations with the girls working near her, and attended to a little girl who had a bloody nose. She also drew two pictures in her notebook, a snowman and a boy and girl holding hands.

At the beginning of the afternoon Rhonda participated in a long reading lesson. For 11 minutes the lesson was medium teacher paced, during two separate transition periods. For 10 minutes during these transitions Rhonda was coded in passive arrest. The remainder of the reading lesson, 79 minutes, accounts for all of the time spent in high teacher paced prescribed options subsettings. For 18 minutes of the 79 minutes the teacher taught a small group the new words, and for 61 minutes read with the group from a Bank Street basal reader. She was off-task for only three minutes in the entire high teacher paced reading lesson.

The Open #1 boy, Rick, spent 69 minutes in low teacher paced subsettings. Only 4 minutes of this was coded open choice. The transition into a reading lesson took three minutes. Rick and a girl took turns reading to each other from a Bank Street basal reader for 22 minutes. Rick was not off-task during this episode. After reading the story Rick was given a comprehension worksheet to do. He spent 41 minutes in this episode, but gave up trying to answer the questions very quickly when he realized he hadn't read the story carefully enough. He was off-task for 29 minutes, continually looking around the room, engaging other children in conversation, and watching the observers.

Under medium teacher paced conditions Rick wrote a story with a group of children and the teacher about a village they had built earlier in the day. The episode lasted 17 minutes and Rick was not off-task. A discussion of this episode was coded prescribed, and the writing section open.

Rick was in one episode coded high teacher pacing prescribed options. For 25 minutes the teacher taught a small group the new reading words for that day. Rick was off-task for 4½ minutes at the beginning of the episode when the teacher and the group were joking around together.

The Open #2 girl, Susan, had only one episode longer than three minutes in first priority knowledge content. Susan played a math strategy game with the teacher for 17 minutes. The episode was coded medium teacher pacing open options and Susan was not off-task during the episode.

Steven, the boy in Open #2, started his day with a fully open choice of activities. He went to a math area and started to manipulate a balance beam, but after four minutes he started across the room, seemingly having abandoned this. The teacher assigned him a math exercise that entailed making up number statements using differently angled wedge signs written on the board. Steven first worked on this alone for 15 minutes, and was off-task about a third of this time. A teacher then came to him and stayed with him 19 minutes until a general class transition, during which time Steven did not go off-task. He started to move in the transition with the rest of the class, but turned back to his seat and worked hard for 2 minutes to finish the last 2 of 10 number statements. A little later he participated in a high teacher paced reading lesson with two other children, enjoying himself immensely by covertly assisting the child next to him with her reading from time to time. In the afternoon Steven was directed to write an entry in his class log before playing with the Lincoln logs, and this was coded prescribed of the prescribed-then-open contingency. The first 4 minutes of this episode consisted of the teacher's talking with him about his day, coded high teacher pacing. During the next 9 minutes Steven worked on the log under low teacher pacing, was off-task 2 minutes of this time, and only copied an entry from the day before. During the last 21 minutes, Steven received intermittent direction from the teacher, coded medium teacher pacing,was off-task 7 minutes of this time, and finished two sentences about his day. These sentences were pretty much words the teacher had put into his mouth, not what he himself had said about the day when first questioned about it. The other parts of Steven's day were spent in second priority activities.

Camille, the girl from Engelmann-Becker #1, began the day under high teacher pacing while receiving instructions (20 minutes) for the day's independent seat work. These instructions were interrupted for about 15 minutes by a P.A. broadcast. Camille's morning shifted back and forth between high teacher paced math (29 minutes), language (21 minutes), and reading (34 minutes), and low teacher paced independent work. During the independent work time Camille could choose between doing take-homes or other workbook assignments. Camille completed her math take-homes and several math workbook pages (14 minutes), a reading paper (4 minutes) and an exercise requiring using specified words in sentences (18 minutes). Camille became involved in several alternatives while seeking help from other children. Camille, however, was usually on-task. During several of the high paced lessons Camille became involved in rocking on her chair, several times falling on the floor. She was also distressed by something in her mouth, perhaps a loose tooth.

The afternoon began with low pacing and a choice of things to do. For 4 minutes Camille listened to a story record and then she read a library book for 3 minutes. Following this she was called to a high teacher paced tutorial (6 minutes) concerning the sentences written in the morning. Several alternatives were noted during the tutorial. These were the result of the teacher being interrupted by other children and the observer. Immediately following the tutorial Camille hurried to correct her paper (7 minutes). She appeared anxious to start the ecology posters already begun by the rest of the class. Later in the afternoon Camille spent 39 minutes under high pacing correcting her independent work. A long alternative was recorded at this time as Camille attempted to change answers and make additions to her papers instead of responding with the class. Several children taunted her because she was writing when it was not permitted.

The instances of medium pacing were recorded as teacher supervised transitions.

Clyde, the boy in Engelmann-Becker #1, received directions for the day's take-home assignments during the first 15 minutes of the morning, and for another 5 minutes following a brief P.A. broadcast. The rest of his morning alternated between high teacher paced sections in language (24 minutes), arithmetic (32 minutes), and reading (28 minutes), and low teacher paced take-home work, viz., an arithmetic worksheet (4 minutes), and a language and writing worksheet (22 minutes). Clyde could do these take-homes in the order he pleased. Clyde's afternoon started with his finishing his arithmetic take-home (18 minutes), and then his doing a phonics worksheet (33 minutes). He participated in a whole class review of the day's take-homes (21 minutes), and was withdrawn from this for a lengthy tutorial in reading (27 minutes). During all of the high teacher paced activity Clyde was rarely distracted, though there were occasions for his sitting passively. In the morning, Clyde's low teacher paced activity was virtually as on-task as the high. In the afternoon, however, his arithmetic activity was interrupted by several announcements and by a story record the teacher was playing for those who wanted to listen (Clyde did not want to). Clyde got stuck very early in his attempt to do the phonics worksheet, had trouble attracting the teacher's attention, did not get the help he needed when a teacher first came, got a wrong steer from consulting Camille's incorrect paper, was chastised by a teacher for not working, and, when he finally found out from a teacher what he was supposed to do, completed the assignment in less than a minute! During much of this 33 minutes, generally after each time he failed to get help, Clyde was looking longingly at the ecology posters that the teacher was already setting other children up to do. When at last he finished the take-homes and got his poster, he worked on it with the greatest concentration, at one time totally ignoring 16 children who marched to music around his desk.

The girl in Engelmann-Becker #2, Ellen, began the day by starting her independent seat work. For 3 minutes she worked under low pacing on a math paper. The teacher then called the class to order and went through a brief phonics review for 3 minutes and gave all the instructions for the day's independent seat work (10 minutes). Most of Ellen's morning was spent in high teacher paced language (22 minutes), reading (20 minutes), and math (23 minutes) lessons. Prior to these lessons Ellen worked in a low teacher paced situation for 36 minutes. During this time Ellen completed two math papers (6 minutes), two writing papers (23 minutes) and a reading paper (7 minutes). Ellen had another period of low teacher paced time just before (7 minutes) and just after (6 minutes) recess, during which time she completed another writing paper. During the 6 minutes after recess Ellen had several choices of things to do. After lunch Ellen's high teacher paced time was divided between reading (11 minutes), spelling (12 minutes) and language (2 minutes). Part of the afternoon (19 minutes) was spent on a story paper. This work was divided between low and high teacher pacing. Twice (total 5 minutes) while Ellen was working on this paper the teacher intervened to discuss the group's stories. During the afternoon only 5 other minutes were devoted to low teacher paced independent work.

Ellen was usually on-task during high teacher paced lessons. However, during the low paced work time she became involved in several alternatives. She worked diligently for awhile but then seemed to become restless. She was distracted by other activities in the classroom and spent several minutes talking with the children seated near her.

Throughout the day there was only a brief period of medium teacher pacing. This occurred for 2 minutes when Ellen was correcting her spelling in the afternoon.

Virtually all first priority activity was prescribed for Eddie, the boy in Engelmann-Becker #2. He received directions for all his independent seat work during the first 10 minutes of the day. Prior to a mid-morning recess, Eddie participated in a high teacher paced math lesson (7 minutes), a reading lesson (20 minutes), and another math lesson (23 minutes). He also spent 23 minutes working on independent seat work in a low teacher paced situation. During this time he completed three writing worksheets. After recess Eddie continued with his seat work (13 minutes), coloring in boxes on one paper. Due to a large number of errors Eddie soon abandoned this paper and then became involved in a series of alternative behaviors. He was then called back to a high teacher paced language lesson for 39 minutes, followed by a continuation of the reading lesson (7 minutes) begun earlier in the morning. After lunch this reading instruction was continued for another 13 minutes. The remainder of the afternoon was divided between high teacher paced math (13 minutes), spelling (9 minutes), language (6 minutes) and a brief period (5 minutes) of low paced seat work. The afternoon was also broken up by recess and a snack period.

During high teacher paced activities Eddie was usually on task; only occasionally and for brief moments was he distracted by something. The predominance of off-task behavior occurred during low teacher paced activities. Eddie spent considerable time interacting with the child next to him. They were often comparing and commenting on each other's work. Eddie was also distracted several times by the activities of other groups. He would look up and chant along with their responses to the teacher.

All the medium teacher paced activity occurred during transitions or passing out materials.

C. On-task and off-task behavior under varied pacing and phase routing conditions. Table 2.37, on two pages, represents a line of questioning that has so far not revealed significant patterns. By comparing the off-task percentages obtained for prescribed routing and unprescribed routing at each of the three levels of teacher pacing, it can be seen that phase routing is not contributing to the patterns of off-task behavior for prescribed first priority content. This does surprise us, and to examine the question further we have created tables for each child in the four options and content priority combinations. The immediate effect of the finding, however, has been one of orienting us more to the patterns that have emerged elsewhere in our data, and somewhat less to the superstructure of expectations that we brought to the data, of which this question is only one example.

D. On-task and off-task behavior under varied combinations of pacing and materials feedback. Table 2.38 shows that children were off-task 20% of the time when they had high feedback materials in first priority content under medium or low pacing, and 31% of the time when they had low feedback materials under these conditions. As Table 2.19 indicated, high feedback materials were only observed for any length of time under these conditions in Bank Street and Bushell. The off-task percentages for high and low feedback material respectively in these two programs separately were Bank Street 15% and 25%, and Bushell 22% and 34%. Only five children, however, were observed for substantial lengths of time with both high and low feedback materials under these conditions, Bank Street #1 girl, and the four Bushell children. For Bushell #1 girl no difference was obtained, while for the other four children differences proportional to the general pattern were obtained. It is obvious that materials feedback is probably confused

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
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Table 2.37 (i)

```
                                  PRE-                                      MAIN    FIRST
            PHASE ROUTING   =   SCRIBED                                   EPISODE = PRIOR-
                CONDENSED       ROUTING                                   CONTENT   ITY

                CHILDREN = ALL


  ROWS = TEACHER PACING               COLUMNS = PHASE VERTICAL
                                                 CONDENSED


                  ON          OFF            ROW
                 TASK         TASK          SUMS   KEY
               |----------|----------|
      HIGH     |     1573|       134|      1707   RAW
               |   92.150|     7.850|   100.000   RPR
               |   64.759|    30.317|    59.457   RPC
               |   54.789|     4.667|    59.457   RPP
               |   22.640|     1.929|    24.568   RPT
               |----------|----------|
      MEDIUM   |      364|        96|       460   RAW
               |   79.130|    20.870|   100.000   RPR
               |   14.986|    21.719|    16.022   RPC
               |   12.679|     3.344|    16.022   RPP
               |    5.239|     1.382|     6.621   RPT
               |----------|----------|
      LOW      |      492|       212|       704   RAW
               |   69.886|    30.114|   100.000   RPR
               |   20.255|    47.964|    24.521   RPC
               |   17.137|     7.384|    24.521   RPP
               |    7.081|     3.051|    10.132   RPT
               |----------|----------|
      COLUMN         2429        442       2871   RAW
       SUMS        84.605     15.395    100.000   RPR
                  100.000    100.000    100.000   RPC
                   84.605     15.395    100.000   RPP
                   34.960      6.362     41.321   RPT

      STATISTICS BASED ON RAW FREQUENCY

      CHI SQUARE =  .272260 E  03                  (SIGNIFICANT AT .001 LEVEL)
      DEGREES OF FREEDOM = 2
```

Table 2.37 (11)

PHASE ROUTING = UNPRESCRIBED ROUTING
CONDENSED

MAIN EPISODE CONTENT = FIRST PRIORITY

MAIN EPISODE OPTIONS CONDENSED = PRESCRIBED CHOICE

CHILDREN = ALL

ROWS = TEACHER PACING COLUMNS = PHASE VERTICAL CONDENSED

	ON TASK	OFF TASK	ROW SUMS	KEY
HIGH	209	11	220	RAW
	95.000	5.000	100.000	RPR
	36.097	6.044	28.909	RPC
	27.464	1.445	28.909	RPP
	[illegible]	0.158	3.166	RPT
MEDIUM	124	52	176	RAW
	70.455	29.545	100.000	RPR
	21.416	28.571	23.127	RPC
	16.294	6.833	23.127	RPP
	1.785	0.748	2.533	RPT
LOW	246	119	365	RAW
	67.397	32.603	100.000	RPR
	42.487	65.385	47.963	RPC
	32.326	15.637	47.963	RPP
	3.541	1.713	5.253	RPT
COLUMN SUMS	579	182	761	RAW
	76.084	23.916	100.000	RPR
	100.000	100.000	100.000	RPC
	76.084	23.916	100.000	RPP
	8.335	2.619	10.953	RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE = .614651 E 02 (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 2

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT                                                    TABLE     5
BEHAVIOR EPISODE STRUCTURE IN SETTINGS
                                                                                           PAGE  1-  1
                                                                                           29 APR 1972
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Table 2.38

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                         DISTRIBUTION OF MATERIALS FEEDBACK BY PHASE VERTICAL
                  SCREENED TO EXCLUDE EPISODE CONTENT NOT READING, WRITING, LANGUAGE,
                         OR ARITHMETIC AND TEACHER PACING NOT MEDIUM OR LOW

ROWS = PHASE VERTICAL        COLUMNS = MATERIALS FEEDBACK
       (CONDENSED)

        HIGH       LOW
        FEED-      FEED-          ROW
        BACK       BACK          SUMS  KEY
      |----------|----------|
ON    |      429 |      960 |     1389  RAW
TASK  |   30.886 |   69.114 |  100.000  RPR
      |   80.037 |   69.465 |   72.419  RPC
      |   22.367 |   50.052 |   72.419  RPP
      |   22.367 |   50.052 |   72.419  RPT
      |----------|----------|
OFF   |      107 |      422 |      529  RAW
TASK  |   20.227 |   79.773 |  100.000  RPR
      |   19.963 |   30.535 |   27.581  RPC
      |    5.579 |   22.002 |   27.581  RPP
      |    5.579 |   22.002 |   27.581  RPT
      |----------|----------|
 COL         536       1382       1918  RAW
 SUMS     27.946     72.054    100.000  RPR
         100.000    100.000    100.000  RPC
          27.946     72.054    100.000  RPP
          27.946     72.054    100.000  RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .215143 E  02                      (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 1

YATES CORRECTED CHI SQUARE =  .210882 E  02   (SIGNIFICANT AT .001 LEVEL)
```

with other variables, particularly child-child interaction. However, it first occurred to us to try the hypothesis when we were coding the Bushell #2 transcripts, where the child-child interaction variables does not figure differentially with the materials. Materials feedback is promising for our analysis of data collected under more controlled conditions. The generalization, if it held up, would again apply to different individuals in different ways.

E. On-task and off-task behavior under varied pacing and child-child interaction conditions. We will not present any new tables at this point. We wish to underscore the finding, reported earlier, that of the various subsettings with medium or low teacher pacing, the two that involved cooperative child-child interaction contained the least off-task behavior. Apart from more subtle interpretations that could be given this, relating for example to the knowledge feedback the children might provide one another, the most obvious significance of this is that in cooperative activity the children do not have to go off-task in order to interact. When the children have their own separate tasks, they do, we have found, interact in relation to these tasks at least as often as in relation to other matters, but the task support that this affords seems to be weaker. The Bushell children, in programmed instruction, much more often compared the quantity of work they had done than, say, the Engelmann-Becker children who had the same tasks though they could do them in different orders. These comparisons rarely seemed to be invidious. They especially gave satisfaction to the individuals who initiated the comparisons, typically following the completion of a section or a page of work, and they might well be functional in the children's taking over the productivity sanctions that originate with the teacher in the classroom. However, the children were less likely to seek or offer substantive criticism or help in their work if the tasks the children had were not the same or varied, or could not be redefined to be so. In one classroom one of our subjects and another child, who had had different tasks in the same workbooks for much of the day, deliberately selected the same page in identical coloring books, countering a teacher's suggestion that they choose different pages, and much on-task interaction resulted from this.

Most of the comments above are impressionistic. A further study of these patterns would be important in relation to the norms the children learn for individual and collective responsibility, and for orienting to the interests of others.

This completes our discussion of various setting conditions affecting the autonomy of the children's classroom activity.

III. Integration as a function of various combinations of setting conditions.

A. Conditions and behavior associated with segmented and integrated contents. Since early in the project we have been interested in the relationship between autonomy and integration. One way of thinking about the question was crystallized for us by our reading of Basil Bernstein's "On the Classification and Framing of Educational Knowledge" (University of London, 1970). Bernstein distinguished between collected and integrated types of curricula, the first being characterized by strong boundaries insulating the curriculum contents, and the second characterized by weak boundaries reducing this insulation. He distinguished similarly between strong and weak framing in the pedagogical relationship between teacher and pupil:

> Frame refers us to the range of options available to teacher and taught in the control of what is transmitted and received in the con-

> text of the pedagogical relationship. Strong framing entails reduced options; weak framing entails a range of options. Thus frame refers to the degree of control teacher and pupil possess over the selection, organization, pacing and timing of the knowledge transmitted and received in the pedagogical relationship.
>
> (Bernstein, p.5)

As we had already determined to examine the framing, to use Bernstein's term, of the several programs we were observing, we now realized that we could explore the relationship of autonomy to integration by testing the relationship of framing to collected, or what we have called segmented, and integrated knowledge contents, i.e., the relationship of framing to classification. This struck us as a viable approach to the general question because the integration of curriculum contents, including what we have more formally called knowledge contents, seemed to be a central tenet of the Bank Street rationale, from which Bank Street expected integrated patterns to appear in the behavior of both teachers and children in the classroom.

We differed with Bernstein in our expectation about how classification and framing would relate. Bernstein maintained that classification and framing were independent of each other, and that a knowledge code could well be characterized by, say, weak classification and strong framing. He gave as an example of this programmed instruction with integrated contents. We, on the other hand, thought such a combination was highly improbable, or that it would have internal contradictions that would lead to shifts in one side of the relationship or the other. What we have now found is, indeed, the larger array of combinations that Bernstein argued was possible, at the same time that the strongest associations were those we expected. Some of what we observed has sharpened our awareness of the uncertainty of the outcomes of the less probable combinations.

Let us present some tables to clarify these statements. We will then suggest the import, not so much of the findings, which are based on very limited observations, as of the questions the tables represent.

Table 2.39 shows the distribution of integrated content by classroom.

Table 2.40 shows that segmented content was associated more with prescribed options, and integrated content more with open options, for the children in all classrooms combined.

Table 2.41 shows that teacher pacing tended to be higher for segmented content than for integrated content.

Tables 2.42 and 2.43 show that for Bank Street phase internal routing, or the prescriptiveness of step-wise operations, was virtually the same for segmented and for integrated contents, while for Open phase internal routing was drastically different for segmented and integrated contents. It turns out that for options and pacing as well, there was less variation in teacher control between segmented and integrated contents for Bank Street than for Open, or indeed for Bank Street than for any of the other programs observed. The contrast, however, is greatest for phase routing.

A similar contrast can be seen in Tables 2.44 and 2.45, phase content integration by phase cognitive complexity.

What these tables suggest is that integrated contents were generally associated with more pupil control than segmented contents, but that Bank Street used integrated contents more didactically than did the other programs. Conversely, Bank Street allowed more pupil control, or weaker framing in Bernstein's term, for segmented contents. This is reflected further in Tables 2.46 and 2.47, which show child-child interaction generally associated more with integrated than with segmented contents, but not associated this way for Bank Street. (The general table, of course, included Bank Street, and the relationship for the three other programs alone is very much stronger.)

One of the most clearcut of many examples we observed of segmented content and high teacher control was surely the Engelmann-Becker recitation in the section subsetting. The strongest example of integrated content and

Table 2.39

ROWS = PHASE
CONTENT
INTEGRATION

COLUMNS = CLASSROOM

	BANK ST. #1	BANK ST. #2	BUSHELL #1	BUSHELL #2	E-B #1	E-B #2	OPEN #1	OPEN #2	ROW SUMS	KEY
SEG-MENTED CONTENT	550	445	495	619	866	730	424	390	4519	RAW
	12.171	9.847	10.954	13.698	19.164	16.154	9.383	8.630	100.000	RPR
	66.667	65.828	86.237	100.000	82.871	100.000	70.903	90.698	82.208	RPC
	10.005	8.095	9.005	11.261	15.754	13.280	7.713	7.095	82.208	RPP
	10.005	8.095	9.005	11.261	15.754	13.280	7.713	7.095	82.208	RPT
INTE-GRATED CONTENT	275	231	79		179		174	40	978	RAW
	28.119	23.620	8.078		18.303		17.791	4.090	100.000	RPR
	33.333	34.172	13.763		17.129		29.097	9.302	17.792	RPC
	5.003	4.202	1.437		3.256		3.165	0.728	17.792	RPP
	5.003	4.202	1.437		3.256		3.165	0.728	17.792	RPT
COLUMN SUMS	825	676	574	619	1045	730	598	430	5497	RAW
	15.008	12.298	10.442	11.261	19.010	13.280	10.879	7.822	100.000	RPR
	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	RPC
	15.008	12.298	10.442	11.261	19.010	13.280	10.879	7.822	100.000	RPP
	15.008	12.298	10.442	11.261	19.010	13.280	10.879	7.822	100.000	RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE = .632321 E 03 (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 7

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS
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Table 2.40

```
         PHASE                                 MAIN EPISODE
ROWS =  CONTENT                  COLUMNS =  OPTIONS
        INTEGRATION                            (CONDENSED)


                         PRE-
              OPEN     SCRIBED          ROW
             CHOICE    CHOICE          SUMS    KEY
          |---------|----------|
SEG-      |    1031 |     3393 |        4424   RAW
MENTED    |  23.305 |   76.695 |     100.000   RPR
CONTENT   |  62.108 |   91.087 |      82.154   RPC
          |  19.146 |   63.008 |      82.154   RPP
          |  19.146 |   63.008 |      82.154   RPT
          |---------|----------|
INTE-     |     629 |      332 |         961   RAW
GRATED    |  65.453 |   34.547 |     100.000   RPR
CONTENT   |  37.892 |    8.913 |      17.846   RPC
          |  11.681 |    6.165 |      17.846   RPP
          |  11.681 |    6.165 |      17.846   RPT
          |---------|----------|
COLUMN        1660        3725          5385   RAW
 SUMS        30.826      69.174      100.000   RPR
            100.000     100.000      100.000   RPC
             30.826      69.174      100.000   RPP
             30.826      69.174      100.000   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .657722 E 03                     (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 1

YATES CORRECTED CHI SQUARE =  .655748 E 03     (SIGNIFICANT AT .001 LEVEL)
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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

               Table 2.41

O.C.

          PHASE
ROWS = CONTENT                   COLUMNS = TEACHER PACING
          INTEGRATION


                                                        ROW
                HIGH      MEDIUM       LOW              SUMS   KEY
            |----------|----------|----------|
 SEG-       |      2042|       647|      1829|          4518   RAW
 MENTED     |    45.197|    14.320|    40.483|       100.000   RPR
 CONTENT    |    89.561|    72.943|    78.502|        82.205   RPC
            |    37.154|    11.772|    33.273|        82.205   RPP
            |    37.154|    11.772|    33.273|        82.205   RPT
            |----------|----------|----------|
 INTE-      |       238|       240|       500|           978   RAW
 GRATED     |    24.335|    24.540|    51.125|       100.000   RPR
 CONTENT    |    10.439|    27.057|    21.488|        17.795   RPC
            |     4.331|     4.317|     9.048|        17.795   RPP
            |     4.330|.    4.317|     9.198|        17.795   RPT
            |----------|----------|----------|
 COLUMN           2280        847       2329            5456   RAW
  SUMS          41.485     15.189     42.376         100.000   RPR
               100.000    100.000    100.000         100.000   RPC
                41.485     15.189     42.376         100.000   RPP
                41.485     15.189     42.376         100.000   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .157254 E  03                    (SIGNIFICANT AT .001 LEVEL
DEGREES OF FREEDOM = 2
```

```
COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS
              Table 2.42

                   PROGRAM = BANK
                             STREET

             PHASE                                    PHASE
   ROWS =    INTERNAL                    COLUMNS =    CONTENT
             ROUTING                                  INTEGRATION

               SEG-          INTE-
               MENTED        GRATED              ROW
               CONTENT       CONTENT             SUMS    KEY
             |------------|------------|
   OPER.     |        524|          254|          778    RAW
   COMPL.    |     67.352|       32.648|      100.000    RPR
   PRESCR.   |     52.663|       50.198|       51.832    RPC
             |     34.910|       16.922|       51.832    RPP
             |      9.532|        4.621|       14.153    RPT
             |------------|------------|
   OPER.     |        313|          229|          542    RAW
   PARTL.    |     57.749|       42.251|      100.000    RPR
   PRESCR.   |     31.457|       45.257|       36.109    RPC
             |     20.853|       15.256|       36.109    RPP
             |      5.694|        4.166|        9.860    RPT
             |------------|------------|
   OPER.     |        158|           23|          181    RAW
   NOT       |     87.293|       12.707|      100.000    RPR
   PRESCR.   |     15.879|        4.545|       12.059    RPC
             |     10.526|        1.532|       12.059    RPP
             |      2.874|        0.418|        3.293    RPT
             |------------|------------|
   COLUMN             995           506          1501    RAW
    SUMS           66.289        33.711       100.000    RPR
                  100.000       100.000       100.000    RPC
                   66.289        33.711       100.000    RPP
                   18.101         9.205        27.306    RPT

   STATISTICS BASED ON RAW FREQUENCY

   CHI SQUARE =  .534146 E  02                          (SIGNIFICANT AT .001 LEVE
   DEGREES OF FREEDOM = 2
```

COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

Table 2.43

```
                    PROGRAM = OPEN


          PHASE                             PHASE
  ROWS = INTERNAL              COLUMNS = CONTENT
         ROUTING                          INTEGRATION

                SEG-        INTE-
               MENTED      GRATED            ROW
               CONTENT     CONTENT           SUMS   KEY
              |----------|----------|
  OPER.       |     479|          7|          486   RAW
  COMPL.      |  98.560|      1.440|      100.000   RPR
  PRESCR.     |  58.845|      3.271|       47.276   RPC
              |  46.595|      0.681|       47.276   RPP
              |   8.714|      0.127|        8.841   RPT
              |----------|----------|
  OPER.       |     270|         40|          310   RAW
  PARTL.      |  87.097|     12.903|      100.000   RPR
  PRESCR.     |  33.170|     18.692|       30.156   RPC
              |  26.265|      3.891|       30.156   RPP
              |   4.912|      0.728|        5.639   RPT
              |----------|----------|
  OPER.       |      65|        167|          232   RAW
  NOT         |  28.017|     71.983|      100.000   RPR
  PRESCR.     |   7.985|     78.037|       22.568   RPC
              |   6.323|     16.245|       22.568   RPP
              |   1.182|      3.038|        4.220   RPT
              |----------|----------|
  COLUMN          814        214           1028   RAW
   SUMS         79.183     20.817        100.000   RPR
               100.000    100.000        100.000   RPC
                79.183     20.817        100.000   RPP
                14.808      3.893         18.701   RPT

  STATISTICS BASED ON RAW FREQUENCY

  CHI SQUARE =  .49094E 03                        (SIGNIFICANT AT .001 LEVEL)
  DEGREES OF FREEDOM = 2

  ***** TABLE TOTALS ARE **
      RAW=         5497

  DEGENERATE PLANE - STATISTICAL OPTIONS SUPPRESSED
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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS
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Table 2.44

```
                    PROGRAM = BANK
                              STREET

          PHASE                                  PHASE
ROWS =    CONTENT                    COLUMNS =   COGNITIVE
          INTEGRATION                            COMPLEXITY

           RECEIVE               APPLY
           INFOR-     LEARN      INFORM&                        ROW
           MATION     SKILLS     SKILLS      N/A               SUMS   KEY
         |----------|----------|----------|----------|
SEG-     |       361|       434|       125|        75|          995   RAW
MENTED   |    36.281|    43.618|    12.563|     7.538|      100.000   RPR
CONTENT  |    61.395|    80.669|    43.103|    88.235|       66.289   RPC
         |    24.051|    28.914|     8.328|     4.997|       66.289   RPP
         |     6.567|     7.895|     2.274|     1.364|       18.101   RPT
         |----------|----------|----------|----------|
INTE-    |       227|       104|       165|        10|          506   RAW
GRATED   |    44.862|    20.553|    32.609|     1.976|      100.000   RPR
CONTENT  |    38.605|    19.331|    56.897|    11.765|       33.711   RPC
         |    15.123|     6.929|    10.993|     0.666|       33.711   RPP
         |     4.130|     1.892|     3.002|     0.182|        9.205   RPT
         |----------|----------|----------|----------|
COLUMN           588        538        290         85         1501   RAW
 SUMS         39.174     35.843     19.320      5.663      100.000   RPR
             100.000    100.000    100.000    100.000      100.000   RPC
              39.174     35.843     19.320      5.663      100.000   RPP
              10.697      9.787      5.273      1.546       27.306   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .144170 E  03                   (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 3
```

COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

Table 2.45

```
            PROGRAM = OPEN


         PHASE                                  PHASE
ROWS =   CONTENT               COLUMNS =        COGNITIVE
         INTEGRATION                            COMPLEXITY

            RECEIVE                APPLY
            INFOR-      LEARN      INFORM&                    ROW
            MATION      SKILLS     SKILLS      N/A            SUMS    KEY
          |----------|----------|----------|----------|
SEG-      |       197|       502|        54|        61|        814   RAW
MENTED    |    24.201|    61.671|     6.634|     7.494|    100.000   RPR
CONTENT   |    98.010|    93.309|    23.684|   100.000|     79.183   RPC
          |    19.163|    48.833|     5.253|     5.934|     79.183   RPP
          |     3.584|     9.132|     0.982|     1.110|     14.808   RPT
          |----------|----------|----------|----------|
INTE-     |         4|        36|       174|          |        214   RAW
GRATED    |     1.869|    16.822|    81.308|          |    100.000   RPR
CONTENT   |     1.990|     6.691|    76.316|          |     20.817   RPC
          |     0.389|     3.502|    16.926|          |     20.817   RPP
          |     0.073|     0.655|     3.165|          |      3.893   RPT
          |----------|----------|----------|----------|
COLUMN          201        538        228         61         1028   RAW
 SUMS        19.553     52.335     22.179      5.934      100.000   RPR
            100.000    100.000    100.000    100.000      100.000   RPC
             19.553     52.335     22.179      5.934      100.000   RPP
              3.657      9.787      4.148      1.110       18.701   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .550422 E  03                    (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 3

     TABLE TOTALS
   RAW=         5497

DEGENERATE PLANS - STATISTICAL OPTIONS SUPPRESSED
```

COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

Table 2.46

```
          PHASE                                CHILD ADDRESS
ROWS =  CONTENT                  COLUMNS =   BEHAVIOR
          INTEGRATION                          (CONDENSED)


               NEGA-       POSI-        NO          GENERAL          ROW
               TIVE        TIVE         ADDRESS     ADDRESS          SUMS    KEY
           |-----------|-----------|------------|-----------|
SEG-       |        66|        348|        3964|         89|        4467   RAW
MENTED     |     1.478|      7.790|      88.740|      1.992|     100.000   RPR
CONTENT    |    60.550|     69.880|      84.305|     86.408|      82.539   RPC
           |     1.220|      6.430|      73.245|      1.644|      82.539   RPP
           |     1.220|      6.430|      73.245|      1.644|      82.539   RPT
           |-----------|-----------|------------|-----------|
INTE-      |        43|        150|         738|         14|         945   RAW
GRATED     |     4.550|     15.873|      78.095|      1.481|     100.000   RPR
CONTENT    |    39.450|     30.120|      15.695|     13.592|      17.461   RPC
           |     0.795|      2.772|      13.636|      0.259|      17.461   RPP
           |     0.795|      2.772|      13.636|      0.259|      17.461   RPT
           |-----------|-----------|------------|-----------|
COLUMN            109         498         4702         103          5412   RAW
 SUMS           2.014       9.202       86.881       1.903       100.000   RPR
              100.000     100.000      100.000     100.000       100.000   RPC
                2.014       9.202       86.881       1.903       100.000   RPP
                2.014       9.202       86.881       1.903       100.000   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .103183 E  03                    (SIGNIFICANT AT .001 LEVEL
DEGREES OF FREEDOM = 3
```

pupil control was the completely spontaneous construction of a model of the Brooklyn Bridge and its environs (the class had, however, visited the bridge severaldays before), by several children, including both out subjects, in an Open classroom.

One reason for a teacher's combining relatively high teacher control and integrated contents, especially in Bank Street but also in a variety of other classrooms, is the desire to foster the children's making connections in content that the teacher does not expect them to make on their own. Presumably the open classroom's visit to the Brooklyn Bridge was organized by the teacher for this purpose. To the extent that the teacher tries to organize the materials and the social interplay of the children toward this end, the teacher's dominance tends to increase, at least temporarily. This is especially the case as the teacher tries to plan in this way for larger groups of children. We have indeed observed situations controlled by teachers that had these intended effects in the children's thought and action. However, we have also observed situations where the effects were compromised. To illustrate this, we could take examples from classrooms of each of the programs observed for this study. A cooking lesson intended to relate various contents, a Valentine-making session used as a vehicle for writing, an ecology posters activity, and a role playing activity, all had a potential for discovering relationships that in fact were submerged in prescriptive routines and stereotyped actions.

Similarly, one must attend to the differences between those occasions when children's greater control over their activity in segmented content contributes to their mastery of the content, and those when one set of controls has simply been substituted for another.

Since we will seem to be implying some special judgment on the Bank

```
COLUMBIA CLASSROOMS ENVIRONMENT PROJECT                                                    TABLE     8
BEHAVIOR EPISODE STRUCTURE IN SETTINGS                                                     PLANE     1
        Table 2.47                                                                         PAGE  1-  1
                                                                                           29 APR 1972
                       CHILD ADDRESS BEHAVIOR (CONDENSED) BY PHASE CONTENT INTEGRATION
                           SCREENED BY CHILD, PROGRAM, CLASSROOM, AND GENDER.

          PROGRAM = BANK
                    STREET

       PHASE                              CHILD ADDRESS
ROWS = CONTENT               COLUMNS = BEHAVIOR
       INTEGRATION                        (CONDENSED)

          NEGA-       POSI-       NO        GENERAL          ROW
          TIVE        TIVE      ADDRESS     ADDRESS          SUMS    KEY
        |----------|----------|----------|----------|
SEG-    |        17|       135|       795|        32|        979    RAW
MENTED  |     1.736|    13.790|    81.205|     3.269|    100.000    RPR
CONTENT |    80.952|    70.313|    65.432|    91.429|     66.917    RPC
        |     1.162|     9.228|    54.340|     2.187|     66.917    RPP
        |     0.314|     2.494|    14.690|     0.591|     18.089    RPT
        |----------|----------|----------|----------|
INTE-   |         4|        57|       420|         3|        434    RAW
GRATED  |     0.825|    11.777|    96.777|     0.620|    100.000    RPR
CONTENT |    19.048|    29.688|    34.568|     8.571|     33.083    RPC
        |     0.273|     3.896|    28.708|     0.205|     33.083    RPP
        |     0.074|     1.053|     7.761|     0.055|      5.943    RPT
        |----------|----------|----------|----------|
COLUMN          21         192        1215          35         1463    RAW
 SUMS        1.435      13.124      83.049       2.392      100.000    RPR
           100.000     100.000     100.000     100.000      100.000    RPC
             1.435      13.124      83.049       2.392      100.000    RPP
             0.388       3.546      22.455       0.647       27.033    RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .135776 E  02                  (SIGNIFICANT AT .011 LEVEL)
DEGREES OF FREEDOM = 3
```

208

O.C.

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT.
BEHAVIOR EPISODE STRUCTURE IN SETTINGS
```

Table 2.48

```
              CHILDREN = ALL

           PHASE
    ROWS = CONTENT                  COLUMNS = PHASE VERTICAL
           INTEGRATION                        ORGANIZATION

              HIGH      MEDIUM      LOW       HIGH                 LOW
              INTE-     INTE-      INTE-     ORIEN-    TRANSI-    ORIEN-       ROW
            GRATION    GRATION    GRATION    TATION     TION      TATION       SUMS   KEY
          |----------|----------|----------|----------|----------|----------|
  SEG-    |      731 |     1848 |      836 |      242 |      117 |      745 |      4519  RAW
  MENTED  |   16.176 |   40.894 |   18.500 |    5.355 |    2.589 |   16.486 |   100.000  RPR
  CONTENT |   66.154 |   94.672 |   75.180 |   76.825 |   70.060 |   88.061 |    82.208  RPC
          |   13.298 |   33.618 |   15.208 |    4.402 |    2.128 |   13.553 |    82.208  RPP
          |   13.298 |   33.618 |   15.208 |    4.402 |    2.128 |   13.553 |    82.208  RPT
          |----------|----------|----------|----------|----------|----------|
  INTE-   |      374 |      104 |      276 |       73 |       50 |      101 |       978  RAW
  GRATED  |   38.241 |   10.634 |   28.221 |    7.464 |    5.112 |   10.327 |   100.000  RPR
  CONTENT |   33.846 |    5.328 |   24.820 |   23.175 |   29.940 |   11.939 |    17.792  RPC
          |    6.804 |    1.892 |    5.021 |    1.328 |    0.910 |    1.837 |    17.792  RPP
          |    6.804 |    1.892 |    5.021 |    1.328 |    0.910 |    1.837 |    17.792  RPT
          |----------|----------|----------|----------|----------|----------|
  COLUMN        1105       1952       1112        315        167        846        5497  RAW
   SUMS       20.102     35.510     20.229      5.730      3.038     15.390     100.000  RPR
             100.000    100.000    100.000    100.000    100.000    100.000     100.000  RPC
              20.102     35.510     20.229      5.730      3.038     15.390     100.000  RPP
              20.102     35.510     20.229      5.730      3.038     15.390     100.000  RPT

  STATISTICS BASED ON RAW FREQUENCY

  CHI SQUARE =  .432516 E  03                    (SIGNIFICANT AT .001 LEVEL)
  DEGREES OF FREEDOM = 5

  ***** TABLE TOTALS *****
     RAW=         5497
```

Street classrooms by these remarks, let us say that we have seen as much success in these matters in Bank Street as in any of the programs, so far as can be judged from observation alone. The open classrooms we visited, though presumably not many that we might have visited, simply made comparatively little effort to give children control over first priority content. At the same time, it is apparent that these are matters that particularly concern Bank Street, and it is this concern that we have attempted to relate to our tables. The larger reasons for our interest transcend pedagogy in the usual sense. As Bernstein discusses in his paper, and as we have discussed in previous writings, the issues reach the conceptions of knowledge and of society itself that might be conveyed to children by different classroom environments. These, however, are issues that are still too large for our grasp, and that we are only beginning to know how to formulate.

B. Conditions and behavior associated with the integration and orientation of the behavior stream. We shall conclude by simply presenting some tables for which further comment by us would be redundant.

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

          Table 2.49


          CHILDREN = ALL


          MAIN EPISODE
ROWS =    OPTIONS                 COLUMNS = PHASE VERTICAL
          (CONDENSED)                       ORGANIZATION

             HIGH       MEDIUM      LOW        HIGH                    LOW
             INTE-      INTE-       INTE-      ORIEN-     TRANSI-     ORIEN-           ROW
             GRATION    GRATION     GRATION    TATION     TION        TATION           SUMS   KEY
            |----------|----------|----------|----------|----------|----------|
OPEN        |      729|       342|       485|       145|       195|       299|         2195   RAW
CHOICE      |   33.212|    15.581|    22.096|     6.606|     8.884|    13.622|      100.000   RPR
            |   51.483|    16.773|    29.755|    40.730|    34.452|    27.306|       30.907   RPC
            |   10.265|     4.816|     6.829|     2.042|     2.746|     4.210|       30.907   RPP
            |   10.265|     4.816|     6.829|     2.042|     2.746|     4.210|       30.907   RPT
            |----------|----------|----------|----------|----------|----------|
PRE-        |      687|      1697|      1145|       211|       371|       796|         4907   RAW
SCRIBED     |   14.000|    34.583|    23.334|     4.300|     7.561|    16.222|      100.000   RPR
CHOICE      |   48.517|    83.227|    70.245|    59.270|    65.548|    72.694|       69.093   RPC
            |    9.673|    23.895|    16.122|     2.971|     5.224|    11.208|       69.093   RPP
            |    9.673|    23.895|    16.122|     2.971|     5.224|    11.208|       69.093   RPT
            |----------|----------|----------|----------|----------|----------|
COLUMN          1416       2039       1630        356        566       1095          7102   RAW
 SUMS          19.938     28.710     22.951      5.013      7.970     15.418       100.000   RPR
              100.000    100.000    100.000    100.000    100.000    100.000       100.000   RPC
               19.938     28.710     22.951      5.013      7.970     15.418       100.000   RPP
               19.938     28.710     22.951      5.013      7.970     15.418       100.000   RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .493566 E  03                      (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 5

***** TABLE TOTALS *****
    RAW=        7102
```

```
COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

          Table 2.50


          CHILDREN = ALL


ROWS = TEACHER PACING        COLUMNS = PHASE VERTICAL
                                       ORGANIZATION

            HIGH      MEDIUM      LOW       HIGH                 LOW
            INTE-     INTE-      INTE-     ORIEN-    TRANSI-   ORIEN-           ROW
           GRATION   GRATION    GRATION    TATION     TION     TATION           SUMS  KEY
         |---------|---------|---------|---------|---------|---------|
  HIGH   |      439|     1229|      865|      143|      187|      345|     3208  RAW
         |   13.685|   38.310|   26.964|    4.458|    5.829|   10.754|  100.000  RPR
         |   29.986|   60.039|   48.432|   35.484|   21.130|   26.559|   40.690  RPC
         |    5.568|   15.589|   10.972|    1.814|    2.372|    4.376|   40.690  RPP
         |    5.568|   15.589|   10.972|    1.814|    2.372|    4.376|   40.690  RPT
         |---------|---------|---------|---------|---------|---------|
  MEDIUM |      152|      278|      238|       94|      268|      255|     1285  RAW
         |   11.829|   21.634|   18.521|    7.315|   20.856|   19.844|  100.000  RPR
         |   10.383|   13.581|   13.326|   23.325|   30.282|   19.630|   16.299  RPC
         |    1.928|    3.526|    3.019|    1.192|    3.399|    3.234|   16.299  RPP
         |    1.928|    3.526|    3.019|    1.192|    3.399|    3.234|   16.299  RPT
         |---------|---------|---------|---------|---------|---------|
  LOW    |      873|      540|      683|      166|      430|      699|     3391  RAW
         |   25.745|   15.925|   20.142|    4.895|   12.681|   20.613|  100.000  RPR
         |   59.631|   26.380|   38.242|   41.191|   48.588|   53.811|   43.011  RPC
         |   11.073|    6.849|    8.663|    2.106|    5.454|    8.866|   43.011  RPP
         |   11.073|    6.849|    8.663|    2.106|    5.454|    8.866|   43.011  RPT
         |---------|---------|---------|---------|---------|---------|
  COLUMN      1464      2047      1786       403       885      1299       7884  RAW
   SUMS     18.569    25.964    22.653     5.112    11.225    16.476    100.000  RPR
           100.000   100.000   100.000   100.000   100.000   100.000    100.000  RPC
            18.569    25.964    22.653     5.112    11.225    16.476    100.000  RPP
            18.569    25.964    22.653     5.112    11.225    16.476    100.000  RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .860189 E  03                (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 10

***** TABLE TOTALS *****
    RAW=       7884
```

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS
O.C.                Table 2.51


                  CHILDREN = ALL


ROWS = PHASE ROUTING          COLUMNS = PHASE VERTICAL
       (CONDENSED)                      ORGANIZATION

             HIGH      MEDIUM      LOW       HIGH                 LOW
             INTE-     INTE-       INTE-     ORIEN-    TRANSI-    ORIEN-        ROW
             GRATION   GRATION     GRATION   TATION    TION       TATION        SUMS   KEY
           |----------|----------|----------|----------|----------|----------|
PRE-       |       470|      1605|      1143|       251|       267|       662|    4398  RAW
SCRIBED|   |    10.687|    36.494|    25.989|     5.707|     6.071|    15.052|  100.000 RPR
ROUTING|   |    32.104|    78.407|    63.962|    62.283|    30.169|    50.962|   55.777 RPC
           |     5.961|    20.355|    14.496|     3.183|     3.386|     8.396|   55.777 RPP
           |     5.961|    20.355|    14.496|     3.183|     3.386|     8.396|   55.777 RPT
           |----------|----------|----------|----------|----------|----------|
UNPRE-     |       994|       442|       644|       152|       618|       637|    3487  RAW
SCRIBED|   |    28.506|    12.676|    18.469|     4.359|    17.723|    18.268|  100.000 RPR
ROUTING|   |    67.896|    21.593|    36.038|    37.717|    69.831|    49.038|   44.223 RPC
           |    12.606|     5.606|     8.167|     1.928|     7.838|     8.079|   44.223 RPP
           |    12.606|     5.606|     8.167|     1.928|     7.838|     8.079|   44.223 RPT
           |----------|----------|----------|----------|----------|----------|
COLUMN        1464       2047       1787        403        885       1299        7885  RAW
 SUMS        18.567     25.961     22.663      5.111     11.224     16.474     100.000 RPR
            100.000    100.000    100.000    100.000    100.000    100.000     100.000 RPC
             18.567     25.961     22.663      5.111     11.224     16.474     100.000 RPP
             18.567     25.961     22.663      5.111     11.224     16.474     100.000 RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .106055 E  04                    (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 5

***** TABLE TOTALS *****
    RAW=        7885
```

O.C.

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COLUMBIA CLASSROOMS ENVIRONMENT PROJECT
BEHAVIOR EPISODE STRUCTURE IN SETTINGS

           Table 2.52

         CHILDREN = ALL

         MAIN
ROWS = EPISODE              COLUMNS = PHASE VERTICAL
       CONTENT                        ORGANIZATION

             HIGH     MEDIUM      LOW      HIGH                LOW
             INTE-     INTE-     INTE-    ORIEN-    TRANSI-   ORIEN-          ROW
           GRATION   GRATION   GRATION    TATION     TION     TATION          SUMS  KEY
          |---------|---------|---------|---------|---------|---------|
FIRST     |     678 |    1889 |     639 |     215 |     357 |     784 |     4562  RAW
PRIOR-    |  14.862 |  41.407 |  14.007 |   4.713 |   7.826 |  17.186 |  100.000  RPR
ITY       |  47.746 |  92.826 |  40.597 |  60.224 |  66.234 |  72.795 |   65.153  RPC
          |   9.683 |  26.978 |   9.126 |   3.071 |   5.099 |  11.197 |   65.153  RPP
          |   9.683 |  26.978 |   9.126 |   3.071 |   5.099 |  11.197 |   65.153  RPT
          |---------|---------|---------|---------|---------|---------|
SECOND    |     742 |     146 |     935 |     142 |     182 |     293 |     2440  RAW
PRIOR-    |  30.410 |   5.984 |  38.320 |   5.820 |   7.459 |  12.008 |  100.000  RPR
ITY       |  52.254 |   7.174 |  59.403 |  39.776 |  33.766 |  27.205 |   34.847  RPC
          |  10.597 |   2.085 |  13.353 |   2.028 |   2.599 |   4.185 |   34.847  RPP
          |  10.597 |   2.085 |  13.353 |   2.028 |   2.599 |   4.185 |   34.847  RPT
          |---------|---------|---------|---------|---------|---------|
COLUMN         1420      2035      1574       357       539      1077       7002  RAW
 SUMS        20.280    29.063    22.479     5.099     7.698    15.381    100.000  RPR
            100.000   100.000   100.000   100.000   100.000   100.000    100.000  RPC
             20.280    29.063    22.479     5.099     7.698    15.381    100.000  RPP
             20.280    29.063    22.479     5.099     7.698    15.381    100.000  RPT

STATISTICS BASED ON RAW FREQUENCY

CHI SQUARE =  .132571 E  04               (SIGNIFICANT AT .001 LEVEL)
DEGREES OF FREEDOM = 5

***** TABLE TOTALS *****
     RAW=         7002
```

Chapter 3: Progress Report of Boris Observations

Rochelle Mayer
Elaine Casey

Role of BORIS in CCEP Evaluation of Follow Through

BORIS is a child-based observation scheme which is designed to obtain information about a child's pattern of interactions with teachers, peers and materials. The BORIS observations hope to contribute to an increased understanding of how and in what manner children's experiences differ in theoretically different Follow Through programs. As in the case of the children's behavior stream observations collected by CCEP, the BORIS observations will be used to describe and analyze children's experiences in different educational environments. Unlike the behavior streams, BORIS observations use time sampling as a unit of behavior and on-the-spot coding of behavior. Also, rather than focusing on individual children by obtaining all day records of one child of each sex in each classroom, BORIS observed more children for shorter periods of time, thus focusing on classroom and program model differences. Nonetheless, many of the BORIS dimensions are also dimensions of analysis that have been applied to the behavior streams so that a great deal of cross-validation of findings will be possible. However, much of the richness and insight into the organization and sequences of behavior for individual children which emerge in behavior streams cannot be adequately captured in time-sampling.

Conversely, systemic recording of what a child is doing--and not doing--and the type of language, if any, he is speaking or listening to, can be quantified more efficiently with the time sampling method. In addition to wanting information gathered by both procedures, CCEP had become increasingly interested in the importance of nonverbal indices of involvement which emerged in some of the behavior stream observations. A more formal conceptualization of what the observers were intuitively reporting could well result in a measure of the quality of the child's moment-to-moment experiences.

Hence, Greene and Logan's development of the involvement scale (IRIS) was coordinated with the BORIS observations to allow simultaneous recording of child behavior and assessment of involvement. This would allow for the exploration of relationships between a child's experiences and his level of involvement. (see Chapter). Similarly, the BORIS observations are being coordinated with ego-ideal interview data. Children observed in the BORIS study are being interviewed with CCEP's ego-ideal measure so that relationships can be explored between children's experiences and their level of ego ideal development. Finally, on the basis of last year's behavior streams CCEP became increasingly interested in the potential of evaluating behavior as matching or mismatching setting expectations and to use this information as an index of effective educational conditions.

Thus, an earlier version of the BORIS scheme was expanded to include--in addition to the coding of behavior--the coding of expected behavior in relation to teachers, other children, and materials. The resultant measure of "matched", or "on-task" behavior can take one of two forms for each interaction dimension (teacher; children; materials): engaging in a behavior that was expected (answering a teacher's question, marching to the music), or not engaging in a given behavior when there was no operating expectation to do so (not attending to or addressing the teacher when she was working with another child). Likewise, "mis-matched" or "off-task"* behavior can take one of two forms: not engaging in a behavior which was expected (not listening to the teacher read the story, not answering the teacher's question); or engaging in a behavior which was not expected or sanctioned (hitting a child; calling out an answer when the teacher had called on another child).

This measure will enable us to explore relationships between setting conditions and "on-task", "off-task" behavior (e.g. does a whole class teacher directed setting produce a high or low incidence of off-task behavior?). Although the definitions are not identical, Grannis' analysis of "on-task", "off-task" behavior in the behavior streams can be related to our own analysis.

Theoretical and Empirical Issues Explored in the BORIS Study

Follow Through's policy of "planned variation" reflects an increasingly felt need to learn more about "the effectiveness of different approaches to the education and development of young, low-income children" (Follow Through Manual, 1969, p. 1). CCEP has been committed to obtaining an increased understanding of educational effectiveness as a function of program model through observational study of classroom process. One rationale for observational research is that before one can understand how or why programs have different effects one has to go beyond theoretical labels and observe the way in which these various educational approaches differ in terms of how children and teachers actually spend their time. In the absence of such research, we lack the kind of information necessary to identify variables which influence program outcomes. The importance of obtaining such observational data has been stated convincingly by Ira Gordon (as quoted by Miller, 1970, p.2):[1]

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*It is important to note that off-task behavior need not be interpreted in a pejorative sense.

> We need to engage in a very systematic observation: the kind of monitoring or quality control, if you will, for taking samples over time of what is actually transpiring to see whether or not (classrooms) are doing what the model says they ought to be doing and whether or not in reality what the models (classrooms) say they hold really differ when they become operational...on what dimensions are they alike and on what dimensions are they different? Only when we begin to address ourselves carefully to that kind of question will we have the kind of research and evaluation that tells us directions for new programs.

The BORIS observational data will be used to explore the extent to which children's behavior with teachers, other children, and materials correspond to published program descriptions of what children's experiences are supposed to be. Quantitative differences in children's experiences in a program model will be compared in terms of the frequency of occurrence of an event on the basis of total observation units. In contrast to this, qualitative differences will be those which look at proportionate occurrence of an event on the basis of a specified condition. For example, a qualitative examination of teacher questions would look at the proportion of questions in relation to total amount of teacher verbalizations in a given classroom, while a qualitative examination of teacher questions would look at the proportion of questions in relation to the total number of observation units in that classroom. In regard to utilizing materials this might mean that while we would expect Engelmann-Becker to have the fewest instances of material use, we would also expect them to have the greatest proportion of symbolic in relation to other uses of material.

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[1] L. Miller and J. Dyer, Experimental Variation of Head Start Curricula: A Companion of Current Approaches, Research Grant Number CG8199 (Washington, D.C.: Office of Economic Opportunity, 1970), p.2.

Also, program similarities will be explored by examining the rank order of code options within a given category for each program. This would yield program profiles which could then be compared. This type of analysis might, for example, point out that all programs have a greater incidence of small group activity than either individual or whole class activities, though one program will undoubtedly have more in relation to other programs. This type of analysis will highlight those kinds of situations or behaviors which occur very rarely or those which occur quite often across program models. It will enable us to test the limits of what Jackson[1] calls the "large regularities in classroom life" in programs with theoretically different orientations, methods, and organization.

Another important issue which will be examined is the range of variation within models and classrooms, and among children in the same classroom. In other words, we will examine the extent to which one classroom looks like another classroom of the same model; the extent to which day one looks like day two in the classroom; and the extent to which one child's experiences look like other children's experiences in the same classroom. This will provide critical information about the extent to which we can consider a program model or classroom a homogeneous entity. We can also see if the range of variation is greater for some programs than for others.

Finally, as mentioned in the previous section, the BORIS data will be coordinated with other measures so that relationships between program treatment and various assessment criteria can be explored. In conjunction with measures of effectiveness, process-oriented classroom research of the sort we have undertaken offers an avenue for isolating the components of programs which are responsible for their effects.

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[1] Phillip Jackson, Life in Classrooms (New York: Holt, Rinehart and Winston, 1968).

Conceptualization of BORIS Dimensions

The decision to document children's experiences in terms of their interactions with teachers, other children, and materials was derived from a conceptualization of differences in program models in terms of their structure or design.[1] As it is being used here, the construct of "structure" is a modification of the construct as it is commonly used in the early education literature. Weikart (1967)[2] and Karnes (1969)[3], for example, posit a spectrum of "structuredness" for differentiating programs where structure is defined as the degree to which teachers plan or prescribe program activities and sequence presentations. However, if one thinks about Bushell's programmed workbooks, or Montessori's prepared environment and "programmed" sensory materials it becomes clear that the criterion of structuredness is not truly unidimensional; we may be referring to the external organization of the child's experiences by the teacher, the sequencing of a child's activity inherent in the design of materials, or both. A unidimensional analysis of structure obscures differences present in types of instructional sequencing and their possible significance. Indeed, it is difficult to understand how such dissimilar instructional strategies can be used to rank programs along a single continuum of structure.

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[1] Rochelle Mayer, "A Comparative Analysis of Preschool Curriculum Models and a Description of an Observation Scheme to Record Child Behavior in Theoretically Different Classrooms" (qualifying paper submitted to Harvard University, May, 1971), p.

[2] D.P. Weikart, "Preschool Programs: Preliminary Findings," Journal of Special Education, 1, (1967), 163-181.

[3] M.B. Karnes, Research and Development Program on Preschool Disadvantaged Children, Final Report to U.S. Office of Education, Vol. 1, University of Illinois, Contract No. OE 6-1-235, 1969 (Washington, D.C.: U.S. Office of Education, 1969).

However, there is another and more important reason for examining type rather than degree of structure. The very notion of education "models" implies an articulated plan; a delineation of goals, teaching strategies, curriculum materials, and prescriptions for how these components relate to one another in practice. In short all educational models represent deliberate or conscious designs. In this sense, all curriculum models are structured.

As defined by the American Heritage Dictionary of the English Language, structure is "the configuration of elements...in a complex entity; the interrelation of parts or the principle of organization in a complex entity." It is in this context that we will analyze classroom structure, taking as the basic components of a classroom teachers, children, and materials. Their interrelationships can be described in terms of interactions--between teacher and child, child and material, and child and child. The task of conceptualizing differences in program models then, is the task of understanding and schematizing their "conscious designs"--of analyzing and comparing how, and to what end, teachers and children interact with each other and with the learning resources made available in their environment.

Despite the large number of observation schemes designed for use in classrooms, and the existence of some with an interaction analysis orientation, it was still deemed necessary to develop a new observation scoring system. This was true primarily because our analysis requires that individual children be observed, rather than teacher or general classroom behavior, and no existing child-based observation scheme allows for the systematic qualification of a child's interactions with teacher, other children, and materials. Additionally, our scheme includes categories to describe the context in which specific behavior occurs as well as categories to describe the expectations operating for behavior and the exact nature of that behavior. The observation scheme uses a time sampling method that allows a ten second interval for the observation, followed by a fifty second coding interval. The ten second unit allows sufficient time for each coding decision, but is brief enough to restrict the complexity of that decision. Reliability has been established and will be reported. The following pages offer a description of the various categories in the observation instrument.*

BORIS Categories

Setting Categories. These categories provide information about the context of the observed child's activity. The child's setting is analyzed along the following dimensions: "teacher pacing"--the extent of teacher regulation of the observed child's activity or behavior; "group cluster"--the size of the observed child's group or activity cluster; "material homogeneity"-- the variety of materials for members in the group cluster; "product/performance"-- the homogeneity of the expected material product or, in its absence, the expected behavioral performance of the observed child in comparison with other members in the group cluster.

The Setting Expectation Categories. The Setting Expectation categories examine the child's ongoing activity or situation in terms of how he is expected to distribute his attention or time among teachers, other children, and materials. It attempts to record what the primary and secondary mediators of the child's learning or experiences are in a given situation. Four categories: "attending to the teacher"; "addressing and/or responding to the teacher"; "interacting with other children"; and "utilizing materials", are coded as primary, secondary, or tertiary foci depending upon the behavior requirements of the child's activity, task, or situation.

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*See Appendices for a more detailed description of BORIS categories

The Behavior Interaction Categories. Four Behavior Interaction categories record whether or not the observed child engaged in the following behaviors: "watching and/or listening to a teacher"; "addressing and/or responding to a teacher"; "interacting--verbally and/or physically--with another child"; and "utilizing materials."

The Behavior Content Categories. The Behavior Content categories provide further information about recorded interactions. If the child attended to the teacher, then teacher behavior is coded as nonverbal, or, if verbal, as giving information; criticism; praise; issuing commands; asking questions (academic or non-academic); answering; reading or singing. The observer also records if teacher behavior is directed to the observed child individually; the observed child as a member of a group; or another child.

The same information, except as it applies to the observed child, is recorded if he addresses (or responds to) the teacher, or is an active participant in an interaction with another child. That is, observed child behavior is coded as nonverbal, or, for verbal behavior, as giving information; criticism; praise; issuing commands; asking questions (academic or non-academic); reading or singing. Notations for differentiating group responses form individual behavior are also recorded.

Other child behavior, when directed specifically toward the observed child is coded as nonverbal or verbal, (including form of language.)

If the observed child utilizes materials the observer codes the type of use to which the material was put: manipulative; symbolic; fantasy; large motor activity; audio-visual only. The observer also notes whether or not the child's use of the material is externally regulated or is primarily self-guided.

In those cases where the child engages in motor activity, the observer notes the type of motor behavior involved. Distinctions are made among motor behavior with large muscle or playground type equipment; task related motor behavior without equipment (as in dancing); routine motor behavior (eating and dressing); and extraneous motor behavior (excessive fidgeting).

In those cases where the observed child engages in fantasy use of materials the observer notes the type of fantasy play involved. Distinctions are made among toy-centered play (make-believe in regard to objects without role taking present); dramatic play (role taking is present); and sociodramatic play (role taking in cooperation with another child).

In addition, if the child attends to the observer or engages in some form of unsolicited watching/listening, a notation is made to that effect.

The Match Categories. The categories discussed above are those concerned with recording the observed child's actual behavior during the ten second observation unit. Another set of categories is concerned with coding whether or not the observed child was expected to engage in interactions with teachers, children, or materials during the ten second observation unit. When the information from the "Match" categories is examined in conjunction with the information from the "Behavior Interaction" categories it becomes possible to make statements about the match or appropriateness between the child's actual behavior and the operating expectation for any given ten second observation unit. Appropriate or matched behavior can take one of two forms: engaging in a behavior that was expected (answering a teacher's question, marching to the music), or not engaging in a given behavior when there was not operating expectation to do so (not attending to or addressing the teacher when she was working with another child). Likewise, inappropriate or mismatched behavior can take one of two forms: not engaging in a behavior which was expected (not listening to the teacher read the story, not answering the teacher's question); or engaging in a behavior which was not expected or sanctioned (hitting a child; calling out an answer when the teacher had called on another child.)

Report of Observation Study.

Since the last progress report we have (1) completed a reliability study for the BORIS instrument; (2) conducted all observations planned for the BORIS-IRIS study and (3) begun a preliminary analysis of the BORIS data and the classroom setting data.

A report and analysis of the results of the reliability study is presented in the Appendix. Briefly, reliability scores for all individual categories were 80% or better. This degree of inter-observer reliability compares favorably with the reliability achieved with other instruments of comparable complexity. Moreover, the study was conducted in an "open" classroom where situations were likely to be more fluid and ambiguous than in a number of the other Follow Through models. A discussion of the BORIS study follows.

Research Design for BORIS-IRIS Study

Observations were conducted in second grade classrooms in four theoretically different Follow Through Models: Engelmann-Becker; Bank Street; Bushell; and the Cognitively-Oriented Model.[1] Two classrooms per model were visited and two full days of observation were spent in each classroom.

Selection of Classrooms

Initially, program sponsors were contacted who either directly assumed responsibility for classroom selection or who chose a particular project site and then had the local project directors or liason personnel select classrooms. We asked to observe in programs that represented the "purest" available examples of the "model" and we asked to observe on days "typical" for those classrooms.[2]

Selection of Subjects

During each visit to a classroom separate data was collected for four children. In some cases a fifth child was observed due to the absence of an original subject on the second day of observation. Subjects were selected randomly from a list of boys supplied by the teacher. Teachers were advised that they could omit the names of any boys who they felt should not be observed.[3]

Population characteristics were controlled insofar as all subjects were second grade males in Follow Through programs; e.g. age, sex, socio-economic background. However, racial background varied; subjects included Black, Spanish-speaking, and white children.

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[1] My special thanks to David Weikart and the High Scope Education Research Foundation for financially contributing to the cognitive program observations.

[2] See Appendix D, letter to Teacher, for further details.

[3] *Ibid*.

Procedures.

BORIS and IRIS observations were conducted simultaneously. This meant that two researchers observed the same child at the same time. Children were observed on a rotating basis[1], and observations were conducted as continuously as possible throughout the school day (with the exception of lunch, children were observed as long as they remained in the school building). An observation cycle lasted ten minutes (10 observation units) and was followed by a shorter period--usually four to six minutes--during which setting descriptions of all group clusters in the classroom were recorded. No fewer than fourteen observation cycles (140 observation units) were completed on any one day of observation. (The greatest number was eighteen.) Therefore, there is a minimum of 280 data points per classroom.

A tape recorder with earphones was used as a timing device to signal the onset and completion of the ten second observation unit and the fifty second coding period. BORIS and IRIS observers wore earphones connected to the same tape recorder so that all signals were simultaneously received.

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[1] The order of rotation, within any complete go-around of four subjects, was random.

Preliminary Data Analysis[1]

Preliminary analysis of both the classroom setting data and the BORIS data consisted of obtaining tables of proportionate occurrence for items within each of the categories. These results were calculated for each model; each classroom; each day; and, in the case of the BORIS data, each child.

Analysis of variance will be used for determining within and between program differences with post-hoc tests performed when relevant. The arcsine transformation will be used to reduce positive skewness. Analysis of variance, along with other manipulations of the data which will involve looking at various categories in conjunction with each other, have not yet been performed.

Although we have, in the last week, received the preliminary data back from the computer, this has not permitted sufficient time to inspect all of the data thoroughly or to transfer all of the information to tables with category definitions. Indeed, it would be impossible to exaggerate the haste with which the tables which appear in Appendix A have been put together. More to point, we must stress and apologize for the cursory nature of our inspection of the data.

In lieu of being able to discuss all of the preliminary data, we have decided to focus on an examination of the classroom setting data and the data from the BORIS Setting Property Categories. Only a few suggestive tables of the data from the Interaction and Behavior Content categories will be included in the present report. Although this represents less than one would have liked it to, we hope that the data we will present will illustrate the kinds of information we have obtained and suggest avenues of further investigations of substantive issues.

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[1] Our special thanks to Karl Heiner for his help and guidance in the analysis of our data.

The Classroom Setting Data

As we mentioned in the section on Procedures, the Classroom Setting Data was collected at the end of each ten minute BORIS observation cycle. During this time one of the observers would write a brief description of the activities of each discernable group or cluster of children in the classroom. This brief description noted @ the number of children in the cluster; what they were doing (same materials? same task?) and the role of the teacher in the activity (directing? supervising?; not present?) additional comments as to how all the teachers in the room were spending their time were also noted. This information was then coded into five categories which parallel the five setting categories of BORIS. In other words, the setting information we code when observing an individual child is the same information we obtained during the Classroom Setting Data collection. The difference, of course, is that we were able to get this information for every group in the classroom--not just the one the observed child happened to be a member of.

We examined the proportionate frequency of occurrence for each alternative setting (and alternative "teacher pacing"; "group size"; "material homogeneity"; and "product/performance" setting characteristics) by using the following formula:

$$\frac{\text{TOTAL NUMBER OF CHILDREN IN SETTING X(OR SETTING CHARACTERISTIC X) SUMMED OVER ALL OBSERVATION CYCLES}}{\text{TOTAL NUMBER OF CHILDREN TIMES THE TOTAL NUMBER OF OBSERVATION CYCLES}}$$

CLASSROOM SETTING OBSERVATION FORM

PROGRAM Cognitive CLASSROOM one DATE 3/13/72 FOLLOWING OBSERVATION CYCLE NUMBER 3

Cluster Number	# of children	Activity Cluster: Description	Teacher Pace	Group Cluster	Material Homogeneity	Products/ Performance	Setting Cluster Code
1	7	T supervised math: cuisenaire rods with worksheets	2	3	1	1	4
2	6	Color pattern worksheets: no teacher	3	2	1	2	8
3	5	Teacher directed lesson on frogs eggs	1	2	1	1	2
4	6	T supervised spelling: worksheet	2	2	1	1	4
5	1	Child out of room					
6							
7							
8							
9							
10							

ADDITIONAL COMMENTS

(How teachers are spending their time)

1 T supervising math group

1 T directing science lesson

1 T supervising spelling group

The data in Table I of Appendix A reports proportionate occurrence of category items by model. Tables II and III repeat the data by classrooms; and Table IV - VIII repeat the data by day.

Before discussing patterns arising from the data in terms of the issues delineated in the section "theoretical and empirical issues" -- and by way of reference for the data--a brief description of the activities observed on each day in each classroom will be presented.

Bank Street: Classroom One -- Day One

(1 head teacher, 2 teacher aides and 26 children, 15 observation cycles)

During the first 15 minutes of the morning (cycle 1) the head teacher led a class meeting to introduce the observers and gave instructions for the day's activities.

During cycle 2 and 3 the class was seated at three tables in the center of the room for a 30 minute teacher directed math lesson. Following the math lesson was a short transition period (cycle 4) during which 19 children remained at their tables waiting for order and instructions. Two children wrote on the blackboard; one was tutored in math and four wandered around.

During cycle 5 the children left the classroom to go to a special math class to work with cuisenair rods. This class was teacher directed for the first half then supervised by three teachers while the children completed problems using the rods.

The class then returned to their own room (cycle 6) and were organized into 10 clusters: 2 children read a book together; one child was tutored in reading by the head teacher; 3 children played a game; two read together; 6 played "Bingo" led by a teacher; 4 painted individually; 1 child worked on seatwork; and 1 child watched the bingo game.

During cycle 7 the children reorganized into 7 groups: 2 children were in animated conversation; 7 were doing identical worksheets; 3 were doing identical seatwork while talking; another group of 3 were also doing identical seatwork while talking; and 2 children also were doing the same seatwork; and 7 children were cleaning-up, supervised by the head teacher.

Before leaving for lunch the head teacher read to the whole class for 10 minutes (cycle 8).

Observation cycles 9 through 14 occurred in the afternoon. During observation cycles 9 through 11 the children were allowed to choose their own activities. A few children worked alone, but most formed groups that ranged in size from 3 to 7 children. The activities engaged in were: seatwork (math, spelling, science); reading alone or with another child; writing about birds; using a recordplayer with earphones; painting; using cuisenaire rods; listening to a story read by a teacher; and playing with or watching a parrakeet. Three seatwork groups and one reading group were supervised or assisted by a teacher.

During cycle 12 the head teacher took a group of 8 children to the school yard where she drew a large map of Africa on the ground. The children stood inside the map while the teacher directed a 10 minute lesson on the geography of Africa and concepts of direction (north, south, east, west). The head teacher continued the lesson with one child for a few more minutes, while the other 7 played on equipment. The 8 children and the teacher then joined hands to form a circle and played a game before returning to the classroom.

During cycle 13 the teacher organized a whole class meeting to give instructions concerning the next days activities.

For the last 20 or 25 minutes of the day (cycles 14 and 15) the class was organized into 8 groups: 3 children read and talked about the same book; 1 child read alone; 3 children talked casually with head teacher; 4 children played "Bingo"; 6 used their own cuisenaire rods and talked; 1 child cleaned up the painting area; and 8 children were out at the library.

When interviewed at the end of the day the head teacher stated that she felt her classroom was pretty much a "pure" Bank Street classroom, but being so large (28 children) it presented some control problems. The teacher also stated that this was a typical day for her class.

Bank Street: Classroom One -- Day Two

(1 head teacher, 2 teacher aides and 28 children, 14 observation cycles)

During observation cycle 1 -- the first 15 minutes of the morning -- the head teacher lead the class in a class meeting, she discussed facts about birds; maps that the class would be making; and gave information about visitors who would be coming later in the day.

During the next 50 minutes (cycles 2 and 3) the class was composed of 10 groups. Five of these groups were made up of children working alone, engaged in: doing subtraction with cuisenaire rods; reading; wandering around; writing in a workbook; and doing subtraction by counting with beans. The other five groups were comprised of; 4 children painting; 5 children with math workbooks supervised by an aide; 5 children doing multiplication tables with an aid; 4 children reading a book and talking; and 3 children doing true-false questions about penguins.

Beginning with cycle 4 and continuing through cycles 5 and 6, the class formed a line to be taken to the gym for a 40 minute gym period. The gym period was a teacher directed period in which the children did exercises and played team games lead by the teacher. During the last cycle of the morning (cycle 6) the children completed a game in the gym and got ready to go to lunch.

Cycles 7 through 14 occurred after lunch. During cycle 7 the head teacher conducted a whole class discussion of the story "The Biggest Bear". Then the teacher had a few children walk in different ways to illustrate "feeling sad" or "feeling happy".

During cycles 8 and 9 (approximately 30 minutes) the children were organized into groups twice. First there were 5 groups in the room; 3 children were in science; 6 children used cuisenaire rods, supervised by an aid; 7 children made multiplication tables while unsupervised; and 5 children used playdough to make topographical maps of Africa, while directed by the head teacher. In the following 20 minute period the children formed 8 groups: 10 children copied homework assignments and made multiplication tables while supervised by an aid; 3 children played with multiplication flash cards; 2 children counted with beans; 2 children were at the window watching a hail storm; 1 child discussed maps with the teacher; 6 children played with reading flash cards; 2 children wandered about; and 2 children went out to the library.

During cycle 10 the whole class listened to a visiting construction worker explain and illustrate how to use a "level".

The rest of the afternoon (cycles 11 through 14) was somewhat chaotic as there were 9 or 10 different groups of children at any one time. Only three of these groups remained constant for more than 10 or 15 minutes, they were: 5 children and an aid using playdough and painting; 5, sometimes 7, children playing bingo with an aid; and 2, and then 4, children playing with building blocks. The rest of the children moved from one activity to another quite often or spent long periods of time (10 to 15 minutes) watching others, looking out the window or just wandering around. Some of the activities engaged in by these children were: using the typewriter, copying homework assignments; reading; using the "level"; going to the library; counting beans; using cuisenaire rods; reading flash cards; and making phonics puzzles.

When interviewed at the end of the day the head teacher indicated that this had not been a typical day. She stated that it had been a very difficult day, with too many visitors and too many different activities.

Bank Street: Classroom Two -- Day One

(2 teachers, 18 children, 12 observation cycles)

During the morning (observation cycles 1 through 10) the class was organized into 9 or 10 clusters of children. The children spent about two thirds of their time engaged in activities of their own choice usually unsupervised. The head teacher held teacher directed, small group, reading and math lessons. These lessons usually included between 4 and 6 children and were about 20 minutes long.

There was one teacher aide who supervised small groups of one or two children working with cuisenaire rods or doing writing or spelling worksheets. In a few instances the aid also conducted teacher directed lessons, but they were usually for a very short time period. When children were unsupervised they were involved in the following activities: reading alone in the library corner; using cuisenaire rods, sometimes sharing the rods with others; using the typewriter, sometimes with the aid of a teacher ; using a microscope to observe differences in appearance between cocoa and sugar; watching video tapes about space travel, usually shared by two children; writing or drawing; and using building blocks. The three most common activities were reading, writing, and using cuisenaire rods. There was a snack table set up in one corner and children were free to take juice and cookies when they wanted.

During observation cycle 10 the whole class was involved in cleaning up their work areas and putting away materials. This activity was all teacher supervised.

Observation cycles 11 and 12 occurred in the afternoon.

During cycles 11 and 12 the whole class went to the art room. The class was seated at two long work tables; 8 children at one and 10 at the other.

During cycle 11 the art teacher gave instructions and illustrated to the whole class how to make an etching on cardboard that had been heavily coated with crayon. During cycle 12 all of the children were coloring and scratching pictures, while the art teacher supervised.

Following the 12th coding cycle all of the children left school for Religious Instruction.

When interviewed at the end of the day the head teacher reported that she felt that her classroom was a "pure" Bank Street classroom but that group reading is one aspect of the program that she would like to change into a more individualized type. She also indicated that this was a typical day in her classroom in that the involvement and autonomy was typical and the feeling of success was typical. Some excitement toward the end of the morning was evident through the noise level rising. She said that this was atypical and was probably due to 4 new adults in the room. (2 BORIS observers and 2 student teachers observing).

Bank Street: Classroom 2 -- Day 2

(2 teachers, 16 children, 18 observation cycles)

Note: there were two student teachers in the room working with some of the children.

The morning was begun (cycle 1) with a whole class meeting directed by the teacher. The rest of the morning (cycles 2 through 11) was very similar to day 1. The class was organized into 9 or 10 clusters. The head teacher again organized groups of 4 or 5 children in teacher directed reading and spelling lessons approximately 20 or 25 minutes long. The regular assistant teacher supervised one or two children at a time in math, writing, and language arts. This teacher sometimes spent 10 or 15 minutes in tutorial situations with one child at a time. On this day there were also two student teachers in the room who on occasion assisted the children or gave a short tutorial. Most children spent more than half of the morning in unsupervised activities of their own choice. Activities included: using a microscope; reading in the library corner; preparing worksheets (math, writing, spelling, science), occasionally supervised by a teacher; using building blocks; watching video tapes, alone or with others; painting; modeling clay figures; pasting and cutting for a class project; using cuisenaire rods, sometimes sharing rods with others; typing; at the sand table; or learning measurements by measuring one another with pieces of yarn. Again the activities engaged in most frequently were reading, writing, and using cuisenaire rods in math. The children were engaged in specific activities all morning with very little wandering.

Observation cycles 12 through 18 occurred in the afternoon. During cycle 12 the class was organized into 6 groups: 4 children were composing a "thank you" letter directed by the head teacher; 4 children were making brownies with the assistant teacher supervising; a student teacher was reading

an astronomy book to two children; and five children were alone and unsupervised, engaged in reading, typing, or a transition. During cycle 13 the cooking lesson continued while the rest of the class pursued their own choice of activity (2 were sharing the typewriter, 1 was reading, 1 was modeling clay, 1 was painting, 1 was doing math, 1 was reading an astronomy book, 1 was at the sand table, and 1 was cutting and pasting).
All of these were unsupervised activities. Cycles 14 and 15 comprised a teacher directed, whole class music lesson. The music teacher lead the class in songs while four of the children acted out the story. The second half of the lesson the teacher played a record and asked the children which instruments they heard being played.

Upon returning to the classroom the children were organized into 7 clusters, (cycles 16 and 17.) The first group of 4 were writing a "thank you" letter directed by the head teacher; three children were washing dishes, assisted by a teacher; 1 was writing alone; 2 were sharing the typewriter; 2 were sharing cuisenaire rods; 2 were sharing the sand table; and 2 were making their own clay figures. During the last cycle (number 18) the whole class was supervised by both teachers while they were cleaning their work areas.

When interviewed at the end of the day the head teacher stated that this was a typical day in her classroom but, having two college students made some changes in that the children became more involved with teachers than usual.

Bushell: Classroom One - Day One

(1 head teacher, 2 aides; 18 children; 14 observation cycles)

This Bushell classroom had three distinct groupings of desks in the room. During observation cycles 1-4 the class was organized such that children in each area worked individually on their own workbooks while a teacher in each area --representing a specific subject concern -- supervised the group and also helped children individually. Sometimes individual help was sustained over a period of more than five minutes and thus qualified as being called "tutorial" according to our scheme. Children changed areas simultaneously and began doing workbooks in a new subject area.

During observation 5 the children engaged in self-selected activities around the room. Examples of such activities are playing with plastic dolls together; working on a puzzle alone; coloring and so forth.

The pattern of activities observed during cycles 1-4 were also observed during cycles 6-8. In one case however, the children were not doing workbook pages at their own speed, but were all doing the same worksheet of unscrambling scrambled words.

During observation cycle 9 the whole class, with the head teacher leading, played a baseball spelling bee game. If a team member spelled a word correctly he would go to first base, etc. During the next observation cycle the class rested, with heads on desk.

The remaining observation cycles, 11-14, occurred after lunch and all consisted of children in the three groups doing workbooks while a teacher supervised. There was a rather lengthy break in the afternoon during which children played outdoors. However, observations were only conducted while children remained in the classroom.

When interviewed at the end of the day the head teacher reported that

1) she felt her classroom was -- as far as she knew -- a "pure" example of the Bushell model and 2) that the day had been a typical one in her classroom.

Bushell : Classroom One -- Day Two
(1 head teacher, 2 aides, 19 children : 15 observation cycles)

During observation cycle 1 the teacher led the whole class in a worksheet exercise e.g. "everyone do number 1 and then put your pencils down". The worksheet exercise consisted of filling in the missing letters in the word. A picture of the object was represented. Cycle 2 occurred during a transition from juice and crackers to workbook groups. Most of the children were in the process of cleaning up.

During observation cycles 3-5 children in three different groups worked on subject area workbooks while a teacher supervised and helped individually.

During observation 6 most of the children were outdoors (12). Those that remained in the classroom played together with tinkertoys; or made valentines.

During observation cycles 7 through 10 the three standard workbook situations resumed, with children occasionally rotating from one area to the next. In at least two instances, the teacher abandoned a supervisory - individual help role and assumed the role of directing her particular group. Once this was for the purpose of giving a spelling test. The other instance involved teaching all those in the group a particular math concept.

Observation cycle 11 occurred during a "back-up" period where children could select to do one of a number of activities.[1] Among the activities observed were children coloring individually; a small group of children playing a bean bag game; a few children playing with dolls; and so forth.

During observation cycles 12 through 14 the teacher gave the whole class a lesson on punctuation and the children filled out a worksheet on punctuation under her direction.

During observation cycle 15 the class, led by the teacher, played a game of Simon Says.

During observation cycles 16-18 the three teacher supervised workbook situations resumed.

During the last observation cycle another "back up " period was in progress. Again, children engaged in a number of self selected activities including board games.

When interviewed at the end of the day the teacher reported that she felt the day had been a typical one in her classroom.

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[1] Activities were "bought" with tokens that the children earned during the workbook sessions.

Bushell: Classroom Two - Day One

(3 teachers, 25 children, 17 observation cycles)

During the morning (observation cycles 1 through 12) the class was organized into three groups -- eight children in math, 8 children copying spelling words from the blackboard, and 9 children in reading. All of these were teacher supervised groups. During cycle 2 the children remained with their particular groups while juice and cookies were served.

Cycle 3 is a "spend period." There were four groups of children; 4 children playing "Candy Land" game, 6 playing with jigsaw puzzles, 4 sharing a game, 5 children using plastic figures for socio-dramatic play, and 6 children out of the room. During cycle 4 the children returned to the three groups set up earlier and remained there through cycle 11. The groups were rotated twice during this time. The last ten minutes before lunch was spent cleaning up or putting materials away.

Observation cycles 13 through 17 occurred after lunch. At the beginning of cycle 13, the teachers set up three evenly divided teacher directed lessons in math, handwriting, and reading. These groups continued through cycle 15 without children rotating (or for thirty minutes). During the last 20 minutes of each lesson, the teacher supervised the group, no longer directing the group in unison. During cycle 16 the head teacher read a paragraph to the whole class and then asked questions about the story. The last fifteen minutes of the day was comprised of a spend period, during which there were six separate groups of children occupied as follows: 4 playing "Candy Land" game; 7 playing with jigsaw puzzles; 3 threading geo-boards; 4 playing "Ants In The Pants" game; 2 sharing picture and word flash cards;

and 2 being supervised by the head teacher while using colored design blocks.

When interviewed at the end of the day the head teacher reported that she did not feel that her classroom was a "pure" Bushell classroom because they do not use tokens as often as the model. The children did not buy juice and cookies and tokens were not necessary for the second "spend period" of the day. The head teacher also stated that this was a typical day for her class.

Bushell: Classroom Two - Day Two
(3 teachers, 27 children, 16 observation cycles)

The morning (observation cycles 1 through 10) was, on the whole, similar in format to day 1. The class was divided into three groups with 9, 9, and 8 children respectively. The first group of 9 were in math with the teacher supervising math workbook problems, and the second group of 9 were in reading. The first half of the reading lesson was teacher directed, the second half teacher supervised. The third group of 8 children were taking a spelling test. This was a teacher directed lesson. During cycle 3 the children remained with their particular group while juice and cookies were served and were supervised by a teacher. A 15 minute spend period followed the juice break, during which the class broke up into eleven separate clusters engaged in the following: 4 children playing a "Loony Links" game assisted by a teacher; 3 playing with a "Monkey" game; 1 child with bingo cards; 2 children sitting at a desk talking; 6 playing cards; 2 sharing picture cards; another group of 3 sharing picture cards assisted by a teacher; 2 playing "Cherry - O" game; and three children in different parts of the room not occupied in any activity. In cycle 5 the class was again divided evenly into three clusters, spelling - handwriting, math, and reading. During cycles 5 and 6 the spelling - handwriting and reading groups were teacher direcced instruction sessions. From cycle 7 through 10 all three groups were conducted as teacher supervised situations with the children rotating to another subject twice during this time. Two of the children spent about 5 minute each at a separate table in the front of the room for misbehaving.

Observation cycles 11 through 16 occurred in the afternoon. From cycle 11 through 14 or approximately 1½ hours the children were again divided into three groups for math, spelling- writing, and reading with the children rotating subjects once. All of these were teacher supervised activities. During the last two observation cycles the children divided their time between cleaning up and a small amount of unsupervised play. Most of the children were very active during these last few minutes -- moving in and out of clusters or leaving the classroom.

When interviewed at the end of the day the head teacher indicated that this was a typical day for her classroom.

Engelmann - Becker : Classroom One -- Day One

(1 teacher, two aides and 19 children, 18 observation cycles)

This Engelmann - Becker classroom had four distinct activity centers: three in corners of the room for small groups and, in the center of the room, desks for each child arranged in a rectangle with space in the center. During the first 5 observation cycles each adult was directing a small group lesson: one in science (on the solar system); one in math (an addition of two digit numbers); and one in language. In addition to the three teacher directed group lessons, a fourth group of children worked unsupervised at their desks in the center area of the room, doing worksheets on the solar system and arithmetic problems. Children rotated from one group to the other about every 20-25 minutes.

During the next three observation cycles the math teacher corrected math worksheet, while keeping an eye on the children doing seatwork. At one point she "tutored" a child after correcting his worksheet. The other two teachers continued directing small groups in their respective subject areas.

The following two observation cycles occurred during a whole class art activity -- with an art specialist. (During this time one regular teacher corrected papers; another tutored a child who did not participate in the art activity; and the third supervised the children participating in the art activity) The art activity involved making "prints" with pieces of clay. The children made impressions in the clay; applied paint to the clay, and then applied the clay to paper.

Observation cycles 11-15 occurred after lunch. During this time the teacher who directed the lesson on the solar system again met with small groups in succession to correct the worksheets on the solar system. During this time, children who were not in the science group were able -- if they had finished their assigned worksheets -- to choose something to do in the room.

Activities engaged in by the children included: listening to a record player with earphones; drawing on the blackboard; looking through or reading a story book. These children were supervised by the two available teachers.

During observation cycle 16 the whole class had juice and cookies, with the exception of two children who were being tutored by one of the teachers. During observation cycle 17 the whole class listened to a record and during the last observation cycle of the day one of the teachers read a story to the whole class.

When interviewed at the end of the day the head teacher reported that: 1) she considered her classroom a "pure" example of the Englemann - Becker Model except for the brief periods of art and music which are provided by specialists on a specified day of the week and 2) that the day had been a typical one in her classroom, although the art occurred only once a week.

Engelmann - Becker : Classroom One -- Day Two

(1 teacher, 2 aides and 20 children, 18 observation cycles)

Similar to day one, the classroom was organized into four group clusters during the morning. Three of these were teacher directed lessons in science, math and language arts, and the fourth consisted of a small number of children working independently on various seatwork tasks. When the assigned tasks were completed children could listen to a record player with earphones, read a book, etc. During observation 5 the math group dismantled, enlarging the seatwork group and changing the situation to one that was now teacher supervised.

During cycles 6 and 7 the music specialist conducted a whole class music lesson. Children sang songs but remained in their seats. During this time one of the regular teachers tutored a child in language arts.

During observation cycles 8-11 the class resumed its prior organization with teachers directing small group lessons in their respective subject areas and the children rotating from group to group.

Observation cycles 12-18 occurred after lunch.

During observation cycles 12 and 13 one teacher conducted a small group language session while the other teachers supervised most of the children who worked at their seats on different tasks (seatwork or reading a book) or were listening to a story record and reading along in the accompanying book. During observation cycle 14 another teacher directed small group formed, this one in science. And in cycle 15 a third teacher directed group formed, this one in math. The original pattern of three teacher directed small groups and one unsupervised group doing work at their seats occurred throughout cycle 16.

During observation cycles 17 and 18 the children had a birthday party.

Juice, cookies and cake were eaten while the children listened to a record.

When interviewed at the end of the day the head teacher reported that, except for the party, the day had been a typical one in her classroom, although the music occurred only once a week.

Engelmann - Becker : Classroom Two -- Day One
(3 teachers, 2 aides and 23 children, 17 observation cycles)

During the first 45 minutes of the day the class was organized into three subject area groups of six children each (reading, math, and language arts). These groups started out as teacher directed lessons with the last third of the lesson becoming a teacher supervised situation with the children doing worksheets on their own. During this time there were five or six children out of the classroom for testing. At this time four groups formed and continued for approximately forty minutes; a group of 9 children in a teacher directed language arts lesson; a small group of 4 or 5 children in a teacher directed reading lesson; and another group of 7 children sitting at a table in the center of the classroom doing teacher supervised seatwork. During the next fifteen minutes the large math group, the small reading group, and the large seatwork group continued, but the four children in language arts left the classroom for testing. At this time the remainder of the class formed into three groups; two children at unsupervised play, another group of 10 at unsupervised play; and a group of 11 children who were eating juice and cookies and were supervised by a teacher. This activity continues for approximately fifteen minutes. The children again formed different clusters for 20 minutes -- one very large group all at their own desks doing teacher supervised seatwork on their own, and another small group also doing take homes supervised by a teacher. Three children were out being tested. At this time there was a long transition period during which a math group of 6 children and a reading group of 3 children formed. Both were teacher directed lessons. For ten minutes the rest of the class was still in transition; some putting away materials, while others wandered around or talked to the teacher aides.

During the last observation cycles of the morning (9 through 11) the math and reading lessons continued in the cubicles and the remainder of the class did teacher supervised seatwork. After snack time and play period there was much restless, moving around and talking among the children. Many children wandered in and out of the classroom to the bathroom or for special testing.

Observation cycles 12 through 17 occurred in the afternoon after lunch. During observation cycles 12 and 13 the whole class had a gym period that lasted for approximately one half hour. The gym teacher was a new teacher and this was her first day at this school. She was very nervous and spent most of the period giving directions and trying to achieve order. The children did not engage in much motor activity. The afternoon in this class was very chaotic. Most of the children spent their time at individual seatwork supervised by a teacher, but there was constant transitions from this large group to very small teacher directed groups in math and science or unsupervised play. There were also two short tutorials with the main teacher during the afternoon. When interviewed at the end of the day the head teacher reported that she did not feel that her classroom was a "pure" Englemann - Becker classroom because she handles every day differently, organizing it by what she feels are the particular needs of the children for that day. And that this was not a typical day in her classroom, because there were many problems with the children.

Engelmann - Becker : Classroom Two -- Day Two

(3 teachers, 2 aides, and 23 children, 16 observation cycles)

The first half of the morning (cycles 1-through-6) were spent in one 30 minute teacher directed whole class music lesson, and then in four groups of approximately 6 children each. The three teacher directed math, language arts, and reading groups occurred in the cubicles, while the fourth group was in the center of the room doing unsupervised individual seatwork. One fourth of the time in reading and language arts, and ½ of the time in the math lesson, the teacher was supervising seatwork rather than conducting an oral drill lesson. During cycle number 7 there was a 10 minute period for juice and cookies during which all of the children were being supervised by a teacher or an aid. During the rest of the morning most of the children's time was divided between 2 small groups, and 2 large group teacher directed lessons and unsupervised play or work. The children rotated groups about every 20 or 25 minutes Again this class tended to become chaotic after the juice and play activity. The size of groups was constantly changing because children left cubicles to play and others were leaving play groups to join one of the groups in a cubicle.

Observation cycles 13 through 16 occurred in the afternoon following lunch. There were seven different groups in the room at all times. Four of the groups were unsupervised ones in which the children were either playing, drawing, doing work books, or just talking. The other three groups were math, reading, or language arts which were usually teacher directed or for a short time teacher supervised. During cycles 14 and 15 one child was being tutored in math by an aide.

Many children seemed to doing nothing or in constant transition from one kind of group to another.

When interviewed at the end of the day the head teacher reported that . this was a typical day in her classroom.

Cognitive: Classroom One -- Day One

(1 teacher, 2 aides, 25 children : 15 observation cycles)

This Cognitive classroom was arranged into four activity areas -- all about the same size. During the first 6 observation cycles a small group activity was carried out in each of the four areas. Children rotated from one area to the next at specified points. In one area the children worked on math worksheets with the aid of cuisenaire rods. Although the teacher directed the children at the beginning of the activity, after the task was understood the children worked individually (occasionally helping each other) and the teacher supervised and helped individually. All children worked on the same worksheet.

In a second area the teacher conducted a science session on frogs and frog eggs. An aquarium with frogs eggs was examined with magnifying glasses and pictures were drawn. Children looked through books to get "facts" about frogs. During the discussion about frogs the teacher wrote an experience chart of the things the children found out.

In a third area the children worked on a spelling worksheet. As in the case of the math group, the teacher began by directing the children and later assumed a supervisory role as children worked on their own.

In the fourth area the children -- with no teacher present -- engaged in a color pattern activity. The children had sheets of paper lined with squares. Their job was to color the squares in such a way that a color pattern emerged. When children finished this work they were free to read a book or work on a puzzle.

The children then went outdoors for recess. When they returned they had a reading activity. One group, of about ten children, listened to a story record. A smaller group read on their own, sometimes receiving individual help from a teacher who was supervising the group.

The third teacher tutored one child in reading individually. The next observation cycle -- number 9 -- occurred during a whole class transition from reading to lunch.

Observation cycles 9 and 10 occurred during gym with a physical education specialist. Children did various exercises, such as push-ups, and played a game of tug of war with a rope.

During observation cycles 11-13 children could engage in a number of activities in the various areas of the room. There was a woodwork and art area; a building area; a reading area; and a quiet games area. Children chose an area after deciding on a "plan" and then went to that area. They could change activities in the course of the afternoon. Among the activities observed during this time were: constructing a dinosaur out of paper; listening to story records with earphones and reading along; playing checkers; working on puzzles; reading books; being tutored by a teacher in reading; constructing an airplane in the woodwork area; playing with puppets; decorating milk cartons; making paper bag puppets; weaving; building with "playskool" blocks; drawing; making color patterns; making geo-board designs with rubber bands. During this time one teacher supervised the woodwork area while the other two tutored children in reading individually.

During observation cycle 14 the children had juice and cookies and during the last observation cycle the children were cleaning up and organizing themselves to leave for the day.

When interviewed at the end of the day the head teacher was asked if she felt her classroom represented a "pure" example of the Cognitive Follow Through model. Although she felt that her afternoon was "true" to the model she felt her mornings were possibly more "structured" than the ideal model classroom would be.

Cognitive: Classroom One -- Day Two

(1 teacher, 2 aides, 27 children; 16 observation cycles)

Similar to the previous day four small group activities occurred during the first 6 observation cycles. Children changed activities at specified times. In one area the children had number worksheets and cuisenaire rods. After directing the children at the beginning of the activity, the teacher assumed a supervisory - individual help role.

In a second group the children made easter baskets by decorating milk cartons with tissue paper. A teacher supervised this activity.

In a third group the children wrote stories. All started with the same first line (e.g. I walked in the forest and found a big box. I opened it and found . . . .). This activity was supervised by a teacher who helped the children spell words they needed to write their story.

In the fourth activity group children were free to either read a book or work on a puzzle or other quiet game. No teacher was present.

Observation cycle 7 occurred while the children were cleaning up getting ready for outdoor play.

During observation 8 the same pattern of activities resumed in the four areas. Observation cycle 9 occurred while the children were cleaning up getting ready for lunch.

Observation cycle 10 occurred during gym with a physical education specialist. The children participated in various relay races.

During observation cycle 11 the teacher had a "planning session" with the children child was called he went up to the teacher and made a plan for the afternoon.

During observation cycles 12-15 the children engaged in a number of activities in various areas of the room. These included: building with various materials (Lego set; Lincoln logs); working on puzzles; listening to records with earphones; engaging in dramatic play with paper dolls; coloring in a coloring book; being tutored in reading; planting seeds; making a paper bracelet; cutting and pasting; drawing; woodwork; writing a story about plants; playing with board games; playing jacks and checkers; weaving, and washing out and cutting milk cartons. During this time one teacher supervised the woodwork area, another tutored children individually i reading and a third supervised the other activities and helped out with the planting activity.

During the last observation cycle of the day the children had juice and cookies.

When interviewed at the end of the day the head teacher reported that the day had been a typical one in her classroom.

Cognitive: Classroom Two -- Day One
(1 teacher; 2 aides, 26 children: 15 observation cycles)

This Cognitive classroom, which was in the same school building as the first cognitive classroom, was also arranged into four activity areas. During the first two observation cycles a language arts activity occurred in each of these areas. The children remained in the same area throughout both observation cycles. In one area a group of children listened to a story with earphones and then wrote out the plot of the story they had listened to in their own words. There was no teacher with this group.

In a second area, the teacher directed the group in filling out and then correcting pages in a reading workbook.

In a third area, the teacher directed a group lesson in word recognition with word flash cards. And in a fourth area, the teacher supervised a group of children who were filling out reading worksheets on their own.

During observation cycles 3-5 different activities occurred in the areas and children rotated from group to group at specified times.

In one group the teacher directed a science lesson on seeds. Each child had various vegetables (green peppers, cucumbers, apples etc.) which he cut open, inspected, and eventually ate. The children counted the seeds, looked at the seeds through magnifying glasses, and classified the seeds according to various criteria such as size, color, and shape.

In a second group the teacher directed a lesson on phonics and spelling. This activity involved changing one word (e.g. never) into another (e.g. every).

A third group, which was supervised by a teacher, engaged in weaving. This activity involved stringing pieces of wool through netted material.

A fourth group did math worksheets with cuisenaire rods.

This group was given directions by a teacher at the beginning and then worked on the problems unsupervised while the teacher supervised the weaving group.

During observation cycle 6 the class had milk and cookies. However, during observation cycles 7-9 the class resumed the activity pattern of the prior observation cycles. The group then went to lunch.

Observation cycles 10 and 11 occurred during gym. The main activity was rope climbing.

During observation cycles 12-14 children could engage in a number of activities in the various areas of the room. Children chose an area after deciding on a "plan" and then went to that area. They could change activities in the course of the afternoon. Among the activities observed during this time were: working on puzzles; playing pick up sticks; caring for the gerbil; painting eggs; drawing; reading; making bunny heads with tissue paper and other materials; listening to records with earphones; writing; typing; doing a color pattern worksheet; and playing a board game.

During observation 15 the class was divided into three groups. The teacher was leading each group in an "evaluation" session of the afternoon's activities. Children discussed what they did and whether or not they fulfilled their original "plan".

During the observation cycle everyone listened to records before getting ready to go home.

When interviewed at the end of the day the head teacher was asked if she felt her classroom represented a "pure" example of the Cognitive Follow Through Model. She responded by saying that her classroom was as close to her understanding of the prototype model as she know how to make it. She also felt that the day had been a typical one in her classroom, although she had not been feeling completely well.

Cognitive: Classroom Two -- Day Two
(1 teacher, 2 aides; 26 children: 14 observation cycles)

Note: In the afternoon one of the aides was absent.

During the first two observation cycles a language arts activity occurred in each of the four areas in the classroom. The children remained in the same area throughout both observation cycles. In one area a group of children listened to a story with earphones. There was no teacher in this group.

In a second area the teacher directed a group lesson using word flash cards. Children acted out the words printed on the cards.

In a third area the teacher directed a reading group. Everyone was on the same page in the same book. The children took turns reading passages and answering questions as they were called on by the teacher.

In a fourth area, while two children wrote their own stories the remainder of the group worked on their reading workbooks. The teacher of this group was not presently in the room because of a errand that she had to run.

During observation cycles 3-9 different activities occurred in the areas of the room and children rotated from group to group at specified times.

In one group the teacher directed a science lesson on seeds which was a continuation of the lesson on the previous day.

A second group wrote creative stories with the help of a teacher. Everyone completed a story which began with the same sentence -- in their own way.

A third group worked with geo - boards and rubber - band designs. In this group the teacher had made rubberband designs on a number of geo - boards. The children, working individually, had to replicate the designs on their own geo - boards and then transfer the design to graph paper.

A fourth group, which worked without a teacher present, colored in pre-outlined Easter pictures which they then cut out.

During the afternoon, and after lunch and gym (which was not observed on this day) the children could engage in a number of activities in the various areas of the room. They could change activities in the course of the afternoon. Among the activities observed during observation cycles 10 and 11 were: playing a store bought memory game; listening to records with earphones; drawing; typing; playing checkers; working with cuisenaire rods; reading; and making Easter baskets. Actually, most of the children made Easter baskets for most of the afternoon, although the other activities also occurred.

Observation cycle 12 occurred during clean up and, during observation cycle 13 the whole class had a birthday party -- cake included.

During the last observation cycle of the day the whole class listened and danced to records.

When interviewed at the end of the day the head teacher reported that although she felt the morning was typical in her classroom she did not feel that the afternoon was as representative as it might have been. She felt that a number of factors contributed to this. First of all, one of the aides was absent in the afternoon. Secondly, most of the children wanted to make Easter baskets since they were going on an egg hunt the following day. The combination of these two factors meant that a large number of children occupied one of the areas and were doing basically the same thing. Finally, the birthday party was not an everyday occurrence.

Discussion of Results: Classroom Setting Data

Table I presents the Classroom Setting data by model. Inspection of the results reveals that classroom settings do differ in expected ways as a function of program model.

With regard to the TEACHER PACING category, which codes the extent to which the teacher regulates the activity of the children in a cluster, we would expect Engelmann-Becker to have the greatest incidence of "High"; Bushell to have the greatest incidence of "Medium"; Bank Street to have the greatest incidence of "Low"; and the Cognitive to have the most even distribution among the code options. All of these predictions hold.

With regard to the GROUP CLUSTER category, which notes the size of an activity cluster, we would expect Bank Street to have the greatest incidence of both individual (child working alone) and whole class activities; and the Engelmann-Becker and Bushell programs to have the greatest incidence of group activities (both small and large combined); and, again, for the Cognitive program to have the most even distribution among the code options. All of these predictions hold.

With regard to the MATERIAL HOMOGENEITY category, which provides information about the variety of materials present in a cluster, we would expect Engelmann-Becker to have the highest incidence of "Same" (identical or shared materials or materials not present); and Bushell, which uses programmed workbooks with children going at their own speed, to have the greatest incidence of "Different." Although Bushell did have the greatest incidence of "different", the Cognitive model had a greater incidence of "Same" than E-B. Thus, this finding differs from what we would expect according to program descriptions. Although the E-B percentage of 62 for "Same" is definitely less than the E-B program description would have us expect; the high incidence of "Same" (82%) for the Cognitive program is perhaps not as surprising as it first appears. After all, the "Same" notation refers to materials and does not necessarily mean that the children are expected to use identical materials in an identical manner. Moreover, there is no reason to expect the group sessions in the morning and the activity areas in the afternoon to have different materials, although, according to program descriptions, we would expect children to do different things with the materials in the afternoon activities.[1]

With regard to the PRODUCT-PERFORMANCE category, which provides information about the variety of products or the range of behavior expected from children in the same activity cluster, we would expect Bereiter and Engelmann to have the highest incidence of "Same"; Bushell to have the highest incidence of "Different"; and Bank Street to have the highest incidence of "Cooperative". While the Bushell and Bank Street predictions hold, the E-B prediction does not. The cognitive model (64%) has a greater incidence of "Same" than the E-B model (59.7). However, an inspection of Table II, p.---, which reports classroom setting data by classroom, reveals that one of the E-B classrooms did have a higher incidence of "Same" than any other classroom, including the Cognitive classrooms. Thus, the failure to meet this prediction seems to be due to a low incidence of "Same" in one of E-B classrooms, rather than revealing a trend true of E-B classrooms in general.

In regard to the SETTING CLUSTER category -- which combines information from the above categories to form broadly defined educational contexts -- predictions as to the highest ranking program are, in all cases, met. "Tutorials" are most frequent in Bank Street; "Teacher directed group lessons" are most frequent in Engelmann-Becker; "Teacher directed whole class" situations are most frequent in Bank Street; "Teacher supervised situations where everyone works on the same task" are most frequent is the Cognitive model; "Teacher supervised situations where everyone works on different tasks" are most frequent in Bushell; "Cooperative situations (either supervised or unsupervised)" occur most frequently in Bank Street; "unsupervised activity where children worked on the same task" occur most frequently in the Cognitive model; and "unsupervised situations where children worked on different tasks" occur most frequently in Bank Street.

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[1] D.P. Weikart, C.K. Kamii, N.L. Radin, "Perry Preschool Project Progress Report," in Preschool Intervention: A Preliminary Report of the Perry Preschool Project, ed. by D.P. Weikart (Ann Arbor: Campus Publishers, 1967).

The Setting Cluster data also reveals that tutorials are rare occurrences in any program (1-4%), and that Cooperative work situations are also relatively rare across program models (1-10%). To the extent that cooperative situations occur, they are more likely to be unsupervised than supervised by a teacher. Although tutorials and cooperative situations are rare in all programs, they do occur most frequently in Bank Street, which is what we would expect. Also, on the basis of visual inspection of the data, the Cognitive model appears to have the most even distribution among code options, which is what we would expect.

Another way of looking at the Classroom Setting Data is in terms of program similarities e.g. examining the order of preference of code options within a category across programs.

For example, with the exception of the Bushell model, all programs have a greater incidence of "Same" vs. "Different" in both the MATERIAL HOMOGENEITY, and PRODUCT-PERFORMANCE categories, and all have fewer instances of cooperative than any other item in the PRODUCT-PERFORMANCE category.

Also, in regard to the size of GROUP CLUSTERS, all have fewer instances of either "whole class" or child working "Alone" situations than "Group" (large and small combined) situations.

This not the case for the TEACHER PACING category where the rank order of code options differs from one program to the next. Thus, the extent to which the teacher regulates children's activity may be one of the most distinguishing treatment dimensions of theoretically different program models.

Within Program Differences. Another important issue involves the extent to which classrooms within a model look like each other e.g. is there a fairly homogeneous pattern characteristic of a program model? Unfortunately, time has not permitted more than a crude preliminary assessment of data (Table II). However, it appears that in about half of the cases the program findings just cited do not hold true for both classrooms. That is, although a program ranks highest on a particular dimension, the classrooms which comprise the program model do not necessarily rank as first and second in relation to all the other classrooms on that dimension. Although the out-of-order classroom may not be greatly out-of-order (e.g. it may rank third) it is nevertheless true that in a number of cases the mean score for a category item in the program data reflects the average of two rather different classroom percentages (e.g. 60% and 42% for E-B TEACHER PACING "High"). It is also true, of course, that the rank order predictions of the program model data do hold in about half the cases. Nevertheless, a visual scan of Table II suggests that rather large within classroom differences may be present.

Needless to say, the within-program differences need to be examined in a more sophisticated statistical fashion so that the nature and parameters of these differences can be studied.

At present, however, the data seem to indicate that we cannot assume that classrooms of the same model are implemented in the same manner. If this finding holds up after closer scrutiny then it may have important implications for interpreting comparative evaluation studies. That is, evaluation studies which compare the outcomes of one model with another model may not be very useful if the models being discussed do not represent homogeneous treatments;[1]

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[1] Sue Stodolsky, "Defining Treatment and Outcome in Early Childhood Education," In Rethinking Urban Education, ed. by H. Walberg (San Francisco: Jossey-Bass, in press).

Unfortunately, time has not permitted more than a visual inspection of the Classroom Setting data by day (Table III). On the basis of the observation descriptions, however, our hunch is that within classroom differences will be smaller than within program model differences. If a characteristic pattern of a classroom emerges, then we can feel more confident about the representativeness of the two day observation period in each classroom.

Discussion of the Results: BORIS Setting Data

Tables IV-VII in Appendix A present data for the BORIS Setting Property categories (same as Classroom Setting Data -- only method of collection differs; see section on Procedures.)

Table IV presents the BORIS Setting data by program model. All of the observations made in regard to the Classroom Setting Data for program model hold for the BORIS Setting data with one exception: The prediction that E-B would have the highest incidence of PRODUCT-PERFORMANCE "Same" -- which was not fulfilled in the Classroom Setting data -- does hold for the BORIS data.

Thus, the BORIS setting data findings support the findings from the Classroom Setting data. We can again conclude that classroom settings do differ in expected ways as a function of program model.

In regard to the Classroom and Day data (Tables V and VI), the same generalizations forwarded with respect to the Classroom Setting data also seem to apply to the BORIS Setting data. Although systematic investigation of the data is required, it seems likely that a pattern of rather substantial within program differences will emerge while within classroom differences will be less pronounced.

BORIS Setting Data by Child is presented in Table VII. Visual inspection of the data suggest that a wide range of variation in children's experiences exists for children in the same classroom. It is not clear at this point whether this trend --if borne out after further investigation -- reflects real differences in children's experiences in the same classroom, or is an artifact of the methodology and sampling procedures employed.

BORIS Interaction Data

Tables VIII-XV present data by program model for some of the other BORIS categories. Again, contraints of time make apologies necessary both for the lack of thoroughness in analyzing and reporting the data/and the preliminary state of the data. However, in order to give the reader a better understanding of the kind of information collected in this study and the kind of findings which may emerge from this study, a brief examination of some of the BORIS preliminary data follows.

Teacher-Child interactions. The first pattern that emerges from the data is that *programs do differ in expected ways in terms of both the quantity and quality of teacher-child encounters.* For example, we would expect "ATTENDING TO" and "ADDRESSING" the teacher to be a continuous requirement of the child's activity most frequently in Engelmann-Becker; to be an intermittent requirement most frequently in Bushell, and to not be a requirement most frequently in Bank Street. All these expectations are fulfilled (see Tables VIII and IX).

We would also expect, in terms of behavior, for Engelmann-Becker children to "Attend to" and "Address" the teacher most frequently and Bushell least frequently. These expectations are also fulfilled although the Cognitive Model has an equally low percentage of "attending to the teacher." This is particularly surprising--especially in view of Wiekart's stated "verbal bombardment" teaching strategy.

A closer examination of the Teacher and Child Communication categories reveals that expectations as to the "AUDIENCE" (e.g. whether the teacher is addressing the observed child individually or as a member of a group; and whether the child is addressing the teacher individually or in unison with a group) also hold. That is, Engelmann-Becker has the highest proportionate incidence of the teacher addressing a group, while Bushell has the highest prohibited nor overtly sanctioned most frequently in the Cognitive classrooms. All of these expectations are fulfilled (see Table XI).

In terms of behavior, we would also expect Bank Street to have the highest incidence of child-child interactions while Bushell and Engelmann-Becker should occupy the low end of the spectrum. These expectations are also borne out (see Table XI).

Two generalizations may be made with respect to "off-task" behavior in relation to child-child interactions: (a) almost without exception children interact with each other at appropriate times and in socially acceptable ways; and (b) to the extent that they don't, this "off-task" behavior occurs most frequently in situations where interacting with other children is a clearly inappropriate or overtly prohibited behavior in terms of the child's activity (e.g. it occurs most frequently in Bushell). (see Table XI).

Child-material interactions. Tables XIII and XIV present the "Material Interaction": and "Behavior Content" categories with respect to using materials. Unfortunately, we cannot, at this point, discuss the results from the "Expectation" and "Mode of Expectation" categories in a meaningful way. This is because information from the two categories need to be examined in conjunction with each other before statements as to expected versus actual program differences can be made.

However, the following observations about the data from Tables XIII and XIV can be made:

(a) As we would expect, when we control for differences in the amoun t of material used we find that the type of materials used differs as a function of program. While the Cognitive and Bank Street programs have a much higher proportionate use of manipulative materials than do the Engelmann-Becker and Bushell programs; the converse is true in regard to symbolic use of materials.

(b) Without exception, all programs have a greater incidence of child-material interaction than either child-child or teacher-child interaction. (also, with the exception of Engelmann-Becker, all programs have a higher incidence of child-child than teacher-child interactions.)

(c) Fantasy Play and Motor Activity were rare occurrences in all of the programs. This is probably due to the fact that the children observed were second graders. If BORIS is used with preschool-age children one would expect to find a higher incidence of these behaviors.

(d) Children engage in more "off-task" behavior with respect to materials than other forms of "off-task" behavior. Moreover, the amount of "off-task" behavior appears to differ as a function of program model. The Bushell program has the highest incidence of children using materials inappropriately or not using materials when they are supposed to. A similar finding has emerged from Grannis' analysis of the child stream data. Other tests performed by Grannis--and discussed elsewhere in the report--indicate that "off-task" material behavior seems to occur most frequently in situations where TEACHER PACING is not "High" but where the materials are highly prescriptive e.g. the prototype Bushell programmed seatwork situation..

(e) The code item "observer" in the UNSOLICITED LOOKING category codes instances of when the observed child watches the observer. Thus, this score can be and is an estimate of observer interference. Observer interference occurred in 2-8% of the observation units. This score is rather low. Thus we need not consider observer interference to be a methodological problem so severe that it invalidates the findings in the present study.

Expectation Configuration. The EXPECTATION CONFIGURATION category combines information from the various EXPECTATION categories into a broadly defined characterization of how the child is expected to distribute his attention among teachers, other children, and materials. It attempts to specify what the primary and secondary mediators of the observed child's learning are in a given situation.

Inspection of Table XV reveals that programs do differ in expected ways in terms of the types of expectations patterns which operate most frequently in their classrooms.

If we restrict our discussion to those patterns where at least one program scored 10% or more, we see that the highest ranking program for each pattern is the one we would predict to rank highest. Engelmann-Becker has the greatest incidence of situations where the teacher is primary although materials are present; both the Cognitive and Bank Street programs have a greater incidence than does E-B or Bushell of situations where attending to the teacher is primary but addressing her is only secondary as is using materials.

The Cognitive program has the highest incidence of situations where materials are primary, but interaction with the teacher or other children is possible.

Bushell has the highest incidence of situations where materials are primary and interacting with the teacher is possible, but where interacting with other children is prohibited.

Bank Street has the highest incidence of situations where utilizing materials cooperatively with other children is primary.

The Cognitive program has the highest incidence of situations where utilizating materials are primary and interacting with other children is possible, but where the teacher is not present.

The last pattern identifies situations where there is no discernable primary focus of attention. Such situations would include the "waiting" for various things to occur (juice and cookies to be distributed; standing on line) which Phillip Jackson speaks about as a "fact" of school life in Life in Classrooms. It might also include transitions when a child has not yet begun a new activity or task. The frequency of occurrence of this pattern across various programs is a less interesting piece of information than the finding that this pattern correlates negatively with involvement ratings, (see Chapter 4.) As we continue to analyze the BORIS data over the next few months for program differences in children's experiences we also hope to explore the usefulness of such BORIS categories as "off-task" behavior; "lack of primary focus"; absence of any "interaction" behavior; etc. as measures of educational effectiveness. As a first step in this direction we have begun to explore relationships between these "process" measures and Greene and Logan's involvement ratings (IRIS). Initial findings of this undertaking are reported in a subsequent chapter.

Appendix A

Notes for Interpreting the Tables in Appendix A

As was indicated at the beginning of Chapter 3, many of the BORIS dimensions are also dimensions of analysis that have been applied to the Behavior Stream records (e.g. the BESIS codes). Thus we have presented the BESIS data alongside the BORIS data for comparative purposes. When both sets of data have the same program as their highest ranking program for a given category item then an asterisk appears in the margin of the BESIS table. We are here only considering the E-B, Bank Street and Bushell programs since the BORIS Cognitive and the BESIS Open classroom data do not have counterparts.

As can be seen from BESIS Tables I, VIII, IX, XIII many of the BORIS findings also hold for the BESIS data.

Also, on the basis of a visual inspection of BESIS Table II it would appear that substantial within program differences are evident in the BESIS as well as the BORIS data.

Although the BORIS and BESIS data will have to be compared in greater detail it does appear that each set of data will support many of the findings from the other set.

ERRATA

Due to an error in Table numbering, there is no Table XII.

Also, a number of page numbers in Appendix A have been omitted since BESIS comparison Tables were not completed.

Table I: Classroom Setting Property Categories, Data by Model

DEFINITION	CLASSROOM SETTING DATA			
	ENGELMANN-BECKER	BANK STREET	BUSHELL	COGNITIVE
TEACHER PACING codes the extent of teacher regulation of the observed child's activity or behavior.				
High. Teacher direction or regulation of the observed child's activity occurs continuously.	51	40	20	29
Medium. Teacher regulation or supervision of the observed child's activity occurs intermittently.	26	20	64	41
Low. Teacher supervision of the observed child's activity is unexpected or at least unpredictable.	20	36	13	28
GROUP CLUSTER codes the size of the observed child's activity cluster.				
Alone. The observed child is working alone or with one other child.	7	25	5	17
Small group. The observed child is a member of a group of from 3-6 children.	34	31	17	33
Large group. The observed child is a member of a group of from 7-12 children.	33	5	60	22
Whole class. The observed child is a member of a group of more than 12 children.	23	35	15	26
MATERIAL HOMOGENEITY provides information about the variety of materials present in the observed child's activity cluster.				
Same. The observed child and the child closest to him have identical materials; are sharing the same materials; or neither has materials.	62	62	34	87
Different. The observed child and the child closest to him have different materials; or only one child has materials while the other does not.	35	34	63	11
PRODUCT-PERFORMANCE provides information about the variety of products or the range of behavior expected from children in the same activity cluster.				
Same. Identical products or behavior (all listening to a story; all tracing triangles).	59	47	28	64
Different. Different products or behavior (one child builds a house with blocks while another child builds a fire station).	35	38	64	27
Cooperative. Cooperative products or behavior (both children build a fire house together).	3	10	5	7
SETTING CLUSTER broadly defines the child's educational setting.				
Tutorial. Teacher directed situation w/one child	2	4	1	1
Teacher directed group lesson. Teacher directed situation with from 3-12 children.	34	8	13	15
Teacher directed whole class. Teacher directed situation with more than 12 children.	15	28	7	13
Teacher supervised situation, identical tasks.	8	4	8	26
Teacher supervised situation, diff. individ. tasks	18	13	55	13
Teacher supervised cooperative project.	1	1	1	1
Unsupervised activity, identical tasks.	3	6	2	10
Unsupervised situation, different individual tasks	14	22	7	13
Unsupervised cooperative project situation.	2	9	4	5
Time spent out of room. Children unaccounted for.	4	5	2	3

Behavior Stream Data by Model

DEFINITION	CLASSROOM SETTING DATA				
	ENGELMANN-BECKER	BANK STREET	BUSHELL	OPEN	
TEACHER PACING codes the extent of teacher regulation of the observed child's activity or behavior.					
High. Teacher direction or regulation of the observed child's activity occurs continuously.	57	42	21	36	*
Medium. Teacher regulation or supervision of the observed child's activity occurs intermittently.	4	11	45	12	*
Low. Teacher supervision of the observed child's activity is unexpected or at least unpredictable.	38	47	34	51	*
GROUP CLUSTER codes the size of the observed child's activity cluster.					
Alone. The observed child is working alone or with one other child.	3	2	5	2	
Small group. The observed child is a member of a group of from 3-6 children.	38	44	67	76	
Large group. The observed child is a member of a group of from 7-12 children.	30	16	6	1	
Whole class. The observed child is a member of a group of more than 12 children.	29	37	22	21	*
MATERIAL HOMOGENEITY provides information about the variety of materials present in the observed child's activity cluster.					
Same. The observed child and the child closest to him have identical materials; are sharing the same materials; or neither has materials.	78	77	60	81	*
Different. The observed child and the child closest to him have different materials; or only one child has materials while the other does not.	22	23	40	19	*
PRODUCT-PERFORMANCE provides information about the variety of products or the range of behavior expected from children in the same activity cluster.					
Same. Identical products or behavior (all listening to a story; all tracing triangles).	78	51	31	34	*
Different. Different products or behavior (one child builds a house with blocks while another child builds a fire station).	19	40	61	49	*
Cooperative. Cooperative products or behavior (both children build a fire house together).	0	7	2	14	*
SETTING CLUSTER broadly defines the child's educational setting.					
Tutorial. Teacher directed situation w/one child	3	2	2	2	*
Teacher directed group lesson. Teacher directed situation with from 3-12 children.	38	11	4	17	*
Teacher directed whole class. Teacher directed situation with more than 12 children.	21	30	13	18	*
Teacher supervised situation, identical tasks.	1	11	20	5	*
Teacher supervised situation, diff. individ. tasks	1	0	22	3	*
Teacher supervised cooperative project.	0	0	1	4	*
Unsupervised activity, identical tasks.	29	27	19	24	
Unsupervised situation, different individual tasks	7	12	24	16	
Unsupervised cooperative project situation.	0	7	1	12	*

Table II:
Classroom Setting Property Categories, Data by Classroom

DEFINITION	CLASSROOM SETTING DATA							
	E-B		Bank Street		Bushell		Cognitive	
	class 1	class 2	class 1	class 2	class 1	class 2	class 1	class 2
TEACHER PACING codes the extent of teacher regulation of the observed child's activity or behavior.								
High. Teacher direction or regulation of the observed child's activity occurs continuously.	60	42	47	30	22	19	22	36
Medium. Teacher regulation or supervision of the observed child's activity occurs intermittently.	22	29	16	24	58	69	47	34
Low. Teacher supervision of the observed child's activity is unexpected or at least unpredictable.	17	22	31	43	16	11	28	28
GROUP CLUSTER codes the size of the observed child's activity cluster.								
Alone. The observed child is working alone or with one other child.	6	8	14	43	8	2	26	9
Small group. The observed child is a member of a group of from 3-6 children.	35	32	31	31	36	6	27	37
Large group. The observed child is a member of a group of from 7-12 children.	38	29	5	4	27	81	12	32
Whole class. The observed child is a member of a group of more than 12 children.	21	24	45	20	24	9	32	20
MATERIAL HOMOGENEITY provides information about the variety of materials present in the observed child's activity cluster.								
Same. The observed child and the child closest to him have identical materials; are sharing the same materials; or neither has materials.	75	49	70	49	40	30	82	93
Different. The observed child and the child closest to him have different materials; or only one child has materials while the other does not.	25	44	24	48	55	68	15	5
PRODUCT-PERFORMANCE provides information about the variety of products or the range of behavior expected from children in the same activity cluster.								
Same. Identical products or behavior (all listening to a story; all tracing triangles).	74	45	56	33	36	24	58	70
Different. Different products or behavior (one child builds a house with blocks while another child builds a fire station).	25	44	29	51	57	68	32	23
Cooperative. Cooperative products or behavior (both children build a fire house together).	1	4	9	13	3	6	7	5
SETTING CLUSTER broadly defines the child's educational setting.								
Tutorial. Teacher directed situation w/one child	1	3	1	7	1	0	1	0
Teacher directed group lesson. Teacher directed situation with from 3-12 children.	42	25	4	14	7	16	7	23
Teacher directed whole class. Teacher directed situation with more than 12 children.	16	14	41	9	13	3	13	13
Teacher supervised situation, identical tasks.	14	7	4	5	11	7	35	17
Teacher supervised situation, diff. individ.tasks	0	22	12	15	46	61	12	15
Teacher supervised cooperative project.	6	1	0	4	0	1	1	2
Unsupervised activity, identical tasks.	11	1	8	3	5	1	2	19
Unsupervised situation, different individual tasks	1	17	15	32	9	5	19	6
Unsupervised cooperative project situation.	1	4	9	9	2	5	7	3
Time spent out of room. Children unaccounted for.	1	7	6	2	4	2	3	2

Behavior Stream Data by Classroom

DEFINITION	CLASSROOM SETTING DATA							
	E-B		Bank Street		Bushell		Open	
	class 1	class 2	class 1	class 2	class 1	class 2	class 1	class 2
TEACHER PACING codes the extent of teacher regulation of the observed child's activity or behavior.								
High. Teacher direction or regulation of the observed child's activity occurs continuously.	59	55	35	54	27	15	34	38
Medium. Teacher regulation or supervision of the observed child's activity occurs intermittently.	3	7	15	4	17	73	7	20
Low. Teacher supervision of the observed child's activity is unexpected or at least unpredictable.	38	39	50	42	57	12	58	42
GROUP CLUSTER codes the size of the observed child's activity cluster.								
Alone. The observed child is working alone or with one other child.	5	0	0	6	4	7	0	4
Small group. The observed child is a member of a group of from 3-6 children.	26	53	51	33	62	71	84	65
Large group. The observed child is a member of a group of from 7-12 children.	28	33	16	17	6	6	2	1
Whole class. The observed child is a member of a group of more than 12 children.	40	14	32	44	27	16	14	30
MATERIAL HOMOGENEITY provides information about the variety of materials present in the observed child's activity cluster.								
Same. The observed child and the child closest to him have identical materials; are sharing the same materials; or neither has materials.	86	68	71	87	49	73	81	81
Different. The observed child and the child closest to him have different materials; or only one child has materials while the other does not.	14	32	29	13	51	27	19	19
PRODUCT-PERFORMANCE provides information about the variety of products or the range of behavior expected from children in the same activity cluster.								
Same. Identical products or behavior (all listening to a story; all tracing triangles).	74	85	46	59	26	37	31	38
Different. Different products or behavior (one child builds a house with blocks while another child builds a fire station).	21	15	43	34	67	55	50	47
Cooperative. Cooperative products or behavior (both children build a fire house together).	0	0	11	1	4	0	18	9
SETTING CLUSTER broadly defines the child's educational setting.								
Tutorial. Teacher directed situation w/one child	5	0	0	5	3	2	0	5
Teacher directed group lesson. Teacher directed situation with from 3-12 children.	28	51	13	7	3	6	24	9
Teacher directed whole class. Teacher directed situation with more than 12 children.	27	11	24	40	21	5	14	24
Teacher supervised situation, identical tasks.	2	1	16	3	10	31	3	7
Teacher supervised situation, diff. individ.tasks	0	3	0	0	0	44	0	6
Teacher supervised cooperative project.	0	0	0	0	1	0	3	4
Unsupervised activity, identical tasks.	29	29	24	32	11	13	21	29
Unsupervised situation, different individual tasks	9	4	13	11	48	0	16	12
Unsupervised cooperative project situation.	0	0	11	1	3	0	17	6

Table III: Classroom Setting Property Categories, Data by Day

DEFINITION	ENGELMANN-BECKER				BANK STREET				BUSHELL				COGNITIVE			
	Class 1		Class 2		Class 1		Class 2		Class 1		Class 2		Class 1		Class 2	
	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2
TEACHER PACING codes the extent of teacher regulation of the observed child's activity or behavior.																
High. Teacher direction or regulation of the observed child's activity occurs continuously.	62	58	41	43	51	43	20	38	11	31	24	14	14	29	46	25
Medium. Teacher regulation or supervision of the observed child's activity occurs intermittently.	23	22	35	23	10	23	31	18	72	46	64	74	58	39	26	44
Low. Teacher supervision of the observed child's activity is unexpected or at least unpredictable.	15	20	13	31	32	30	48	40	18	15	10	12	26	29	29	27
GROUP CLUSTER codes the size of the observed child's activity cluster.																
Alone. The observed child is working alone or with one other child.	7	4	4	13	15	13	40	45	11	6	1	3	22	29	11	6
Small group. The observed child is a member of a group of from 3-6 children.	31	39	35	29	28	33	32	30	42	30	8	4	31	25	40	34
Large group. The observed child is a member of a group of from 7-12 children.	35	41	32	25	4	6	10	0	32	23	76	86	12	12	30	33
Whole class. The observed child is a member of a group of more than 12 children.	27	16	18	31	46	43	17	22	14	32	12	6	33	31	19	21
MATERIAL HOMOGENEITY provides information about the variety of materials present in the observed child's activity cluster.																
Same. The observed child and the child closest to him have identical materials; are sharing the same materials; or neither has materials.	81	69	41	58	70	69	43	54	33	47	38	22	82	82	93	92
Different. The observed child and the child closest to him have different materials; or only one child has materials while the other does not.	19	31	48	40	23	26	55	43	67	45	59	78	16	14	7	3
PRODUCT-PERFORMANCE provides information about the variety of products or the range of behavior expected from children in the same activity cluster.																
Same. Identical products or behavior (all listening to a story; all tracing triangles).	81	66	38	53	59	53	28	37	28	43	31	17	67	51	69	71
Different. Different products or behavior (one child builds a house with blocks while another child builds a fire station).	19	31	48	40	26	32	57	46	70	45	59	78	27	36	23	22
Cooperative. Cooperative products or behavior (both children build a fire house together).	0	2	3	5	7	10	13	13	2	4	7	5	4	10	8	2
SETTING CLUSTER broadly defines the child's educational setting.																
Tutorial. Teacher directed situation w/one child	2	1	2	5	1	1	7	8	1	1	0	0	2	1	0	0
Teacher directed group lesson. Teacher directed situation with from 3-12 children.	39	47	22	29	3	6	13	15	3	11	18	14	13	3	27	18
Teacher directed whole class. Teacher directed situation with more than 12 children.	22	11	18	10	46	36	0	15	7	19	6	0	0	25	19	7
Teacher supervised situation, identical tasks.	8	9	3	12	2	5	9	2	13	9	7	6	53	20	8	27
Teacher supervised situation, diff. individ.tasks	15	13	33	11	6	18	19	12	58	37	56	66	4	19	14	17
Teacher supervised cooperative project.	0	0	0	1	0	0	3	4	0	0	0	2	1	0	3	1
Unsupervised activity, identical tasks.	12	0	0	1	7	8	6	1	5	6	0	1	1	3	17	22
Unsupervised situation, different individual tasks	3	18	9	26	19	12	13	31	11	8	2	8	22	16	9	4
Unsupervised cooperative project situation.	0	2	3	5	7	10	9	8	2	2	7	3	3	10	4	1
e spent out of the room. Children unaccounted for.	0	0	11	2	7	5	1	3	0	8	3	0	2	3	0	5

Table V: BORIS Setting Property Categories, Data by Classroom

DEFINITION	E-B		Bank Street		Bushell		Cognitive	
	class 1	class 2	class 1	class 2	class 1	class 2	class 1	class 2
TEACHER PACING codes the extent of teacher regulation of the observed child's activity or behavior.								
High. Teacher direction or regulation of the observed child's activity occurs continuously.	73	42	41	18	27	7	27	37
Medium. Teacher regulation or supervision of the observed child's activity occurs intermittently.	11	42	33	24	61	77	34	20
Low. Teacher supervision of the observed child's activity is unexpected or at least unpredictable.	17	16	27	58	12	16	38	43
GROUP CLUSTER codes the size of the observed child's activity cluster.								
Alone. The observed child is working alone or with one other child.	5	16	22	51	9	4	28	17
Small group. The observed child is a member of a group of from 3-6 children.	72	70	50	28	65	92	54	72
Large group. The observed child is a member of a group of from 7-12 children.								
Whole class. The observed child is a member of a group of more than 12 children.	23	16	28	21	26	4	18	12
MATERIAL HOMOGENEITY provides information about the variety of materials present in the observed child's activity cluster.								
Same. The observed child and the child closest to him have identical materials; are sharing the same materials; or neither has materials.	92	61	71	35	44	36	71	90
Different. The observed child and the child closest to him have different materials; or only one child has materials while the other does not.	8	39	29	65	56	64	29	10
PRODUCT-PERFORMANCE provides information about the variety of products or the range of behavior expected from children in the same activity cluster.								
Same. Identical products or behavior (all listening to a story; all tracing triangles).	88	44	53	34	38	23	46	64
Different. Different products or behavior (one child builds a house with blocks while another child builds a fire station).	12	44	33	65	59	67	47	31
Cooperative. Cooperative products or behavior (both children build a fire house together).	0	12	14	2	3	9	7	5
SETTING CLUSTER broadly defines the child's educational setting.								
Tutorial. Teacher directed situation w/one child	1	0	2	1	0	0	0	0
Teacher directed group lesson. Teacher directed situation with from 3-12 children.	55	32	13	8	6	7	12	28
Teacher directed whole class. Teacher directed situation with more than 12 children.	16	9	26	10	21	1	16	9
Teacher supervised situation, identical tasks.	3	12	12	12	11	16	18	7
Teacher supervised situation, diff. individ. tasks	9	27	20	12	48	62	17	13
Teacher supervised cooperative project.	0	3	1	0	3	0	0	0
Unsupervised activity, identical tasks.	14	0	5	4	1	2	1	20
Unsupervised situation, different individual tasks	2	13	10	52	11	6	31	18
Unsupervised cooperative project situation.	0	3	12	2	0	9	7	5

Table VI: BORIS Setting Property Categories, Data by Day

DEFINITION	ENGELMANN-BECKER				BANK STREET				BUSHELL				COGNITIVE			
	Class 1		Class 2		Class 1		Class 2		Class 1		Class 2		Class 1		Class 2	
	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2
TEACHER PACING codes the extent of teacher regulation of the observed child's activity or behavior.																
High. Teacher direction or regulation of the observed child's activity occurs continuously.	68	77	41	42	38	44	17	19	25	28	7	7	32	23	44	28
Medium. Teacher regulation or supervision of the observed child's activity occurs intermittently.	15	7	37	48	28	38	26	23	59	63	75	79	25	43	14	26
Low. Teacher supervision of the observed child's activity is unexpected or at least unpredictable.	17	16	22	10	34	18	57	58	16	9	18	14	43	34	41	46
GROUP CLUSTER codes the size of the observed child's activity cluster.																
Alone. The observed child is working alone or with one other child.	6	4	12	19	29	15	42	57	4	12	1	7	32	24	16	17
Small group. The observed child is a member of a group of from 3-6 children.	50	53	66	54	34	45	33	22	16	27	14	6	27	34	51	25
Large group. The observed child is a member of a group of from 7-12 children.	19	21	6	13	11	10	0	1	59	32	83	81	22	25	22	46
Whole class. The observed child is a member of a group of more than 12 children.	24	22	16	14	26	30	25	19	21	28	2	6	19	17	11	12
MATERIAL HOMOGENEITY provides information about the variety of materials present in the observed child's activity cluster.																
Same. The observed child and the child closest to him have identical materials; are sharing the same materials; or neither has materials.	92	92	58	65	68	75	38	34	41	46	38	33	65	76	91	88
Different. The observed child and the child closest to him have different materials; or only one child has materials while the other does not.	8	8	42	35	32	25	62	66	59	54	62	67	35	24	9	12
PRODUCT-PERFORMANCE provides information about the variety of products or the range of behavior expected from children in the same activity cluster.																
Same. Identical products or behavior (all listening to a story; all tracing triangles).	83	92	42	46	47	59	35	33	34	41	24	22	50	42	63	65
Different. Different products or behavior (one child builds a house with blocks while another child builds a fire station).	17	8	53	35	32	33	62	66	66	54	62	72	43	51	33	29
Cooperative. Cooperative products or behavior (both children build a fire house together).	0	0	5	19	20	8	3	1	0	5	14	6	7	7	4	6
SETTING CLUSTER broadly defines the child's educational setting.																
Tutorial. Teacher directed situation w/one child	0	2	0	0	3	1	0	1	0	0	0	0	0	0	0	0
Teacher directed group lesson. Teacher directed situation with from 3-12 children.	50	59	35	29	13	12	8	8	4	7	6	7	18	6	34	21
Teacher directed whole class. Teacher directed situation with more than 12 children.	15	16	6	13	22	30	9	10	21	21	1	0	14	17	11	7
Teacher supervised situation, identical tasks.	1	6	7	18	11	12	16	9	8	13	15	14	16	19	2	13
Teacher supervised situation, diff. individ. tasks	16	1	25	30	15	26	12	13	51	45	61	65	9	24	12	13
Teacher supervised cooperative project.	0	0	5	0	1	0	0	0	0	5	0	0	0	0	0	0
Unsupervised activity, identical tasks.	17	12	0	0	3	7	2	5	1	0	3	1	1	0	16	24
Unsupervised situation, different individual tasks	1	4	22	4	15	4	51	53	15	9	2	9	35	27	21	15
Unsupervised cooperative project situation.	0	0	0	6	16	7	2	1	0	0	13	6	7	7	4	7

Table VII: BORIS Setting Property Categories, Data by Child

DEFINITION	ENGELMANN-BECKER							
	Classroom 1				Classroom 2			
	CHILD 1	2	3	4	CHILD 1	2	3	4
TEACHER PACING codes the extent of teacher regulation of the observed child's activity or behavior.								
High. Teacher direction or regulation of the observed child's activity occurs continuously.	86	62	55	90	40	63	48	18
Medium. Teacher regulation or supervision of the observed child's activity occurs intermittently.	1	20	12	9	46	16	38	68
Low. Teacher supervision of the observed child's activity is unexpected or at least unpredictable.	13	19	34	2	14	21	15	14
GROUP CLUSTER codes the size of the observed child's activity cluster.								
Alone. The observed child is working alone or with one other child.	0	14	5	0	14	8	9	32
Small group. The observed child is a member of a group of from 3-6 children.	88	66	77	59	83	69	78	51
Large group. The observed child is a member of a group of from 7-12 children.								
Whole class. The observed child is a member of a group of more than 12 children.	13	20	19	41	4	24	14	17
MATERIAL HOMOGENEITY provides information about the variety of materials present in the observed child's activity cluster.								
Same. The observed child and the child closest to him have identical materials; are sharing the same materials; or neither has materials.	99	74	98	100	69	73	59	45
Different. The observed child and the child closest to him have different materials; or only one child has materials while the other does not.	1	26	2	0	31	28	41	55
PRODUCT-PERFORMANCE provides information about the variety of products or the range of behavior expected from children in the same activity cluster.								
Same. Identical products or behavior (all listening to a story; all tracing triangles).	99	74	86	94	60	60	46	12
Different. Different products or behavior (one child builds a house with blocks while another child builds a fire station).	1	26	14	6	31	40	41	63
Cooperative. Cooperative products or behavior (both children build a fire house together).	0	0	0	0	9	0	13	24
SETTING CLUSTER broadly defines the child's educational setting.								
Tutorial. Teacher directed situation w/one child	0	4	0	0	0	0	0	0
Teacher directed group lesson. Teacher directed situation with from 3-12 children.	74	44	48	57	36	50	35	9
Teacher directed whole class. Teacher directed situation with more than 12 children.	13	13	7	29	4	13	13	9
Teacher supervised situation, identical tasks.	0	5	0	7	24	11	11	4
Teacher supervised situation, diff. individ. tasks	1	14	12	6	23	5	26	55
Teacher supervised cooperative project.	0	0	0	0	0	0	0	10
Unsupervised activity, identical tasks.	13	11	31	2	0	0	0	0
Unsupervised situation, different individual tasks	0	7	2	0	9	21	15	9
Unsupervised cooperative project situation.	0	0	0	0	5	0	0	6

Table VII: continued

BANK STREET								BUSHELL								COGNITIVE								
Classroom 1				Classroom 2				Classroom 1				Classroom 2				Classroom 1					Classroom 2			
CHILD 1	2	3	4	CHILD 1	2	3	4	CHILD 1	2	3	4	CHILD 1	2	3	4	CHILD 1	2	3	4	5	CHILD 1	2	3	4
41	53	28	39	6	24	20	24	16	25	66	2	0	14	1	15	30	0	38	36	2	41	9	48	47
56	26	3	47	24	6	63	6	71	60	21	90	93	68	73	75	43	100	30	13	47	17	9	34	18
3	22	69	14	70	70	17	70	13	15	13	8	8	19	26	10	28	0	33	51	51	41	83	19	34
16	9	46	20	60	67	27	49	20	8	0	8	1	0	13	0	19	0	36	34	25	13	13	23	17
70	49	28	53	21	24	32	33	75	67	38	81	95	86	86	100	56	100	39	58	61	69	87	65	68
14	42	27	27	19	9	41	19	5	25	62	11	4	14	0	0	25	0	25	9	14	19	0	13	15
64	90	71	57	25	27	56	35	34	42	69	32	24	38	38	44	76	100	76	64	60	93	87	95	83
36	10	29	43	75	73	44	65	66	58	31	68	76	63	62	56	24	0	24	36	40	7	13	5	17
47	81	31	50	24	24	56	33	21	30	69	32	24	18	19	34	39	100	50	51	32	61	51	73	68
50	10	29	43	75	73	44	65	66	70	31	68	76	64	62	66	48	0	50	48	51	26	44	28	26
3	9	40	7	1	3	0	3	13	0	0	0	0	19	19	0	14	0	0	1	18	13	4	0	5
4	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	14	0	10	0	14	14	6	16	0	4	2	0	13	1	15	5	0	13	28	0	24	9	35	41
11	39	27	27	6	9	6	18	0	25	63	0	0	1	0	0	25	0	25	9	2	17	0	13	7
14	18	2	13	13	0	34	1	5	5	0	30	18	4	18	19	9	100	13	13	30	6	3	13	8
41	5	2	34	10	6	31	4	54	54	21	60	75	64	52	56	34	0	16	0	18	11	6	21	11
0	3	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	15	4	0	5	1	1	8	0	0	3	0	6	0	1	0	0	0	0	3	0	14	49	13	12
3	5	25	7	65	66	13	61	13	15	10	9	1	0	10	10	15	0	33	48	33	14	39	6	16
0	1	40	7	1	3	0	3	0	0	0	0	0	19	18	0	13	0	0	1	18	13	4	0	5

Table VIII: BORIS Data by Model

DEFINITION	ENGELMANN-BECKER	BANK STREET	BUSHELL	COGNITIVE
ATTENDING TO THE TEACHER: EXPECTATION. This category examines the observed child's ongoing activity in terms of its demands for attending to the teacher.				
Primary. Attending to the teacher is a continuous requirement of the observed child's ongoing activity.	55	25	15	16
Secondary. Attending to the teacher is an intermittent requirement of the observed child's ongoing activity.	29	31	68	43
Tertiary. Attending to the teacher is not an operating expectation.	16	43	16	40
ATTENDING TO THE TEACHER: BEHAVIOR. This category codes whether or not the observed child attended to the teacher.				
Yes. The observed child is watching and/or listening to the teacher.	55	36	25	25
No. The observed child is not watching or listening to the teacher.	45	64	75	75
ATTENDING TO THE TEACHER: ON TASK-OFF TASK BEHAVIOR.				
On task: expectation. The observed child attended to the teacher when he was expected to.	95	99	97	96
On task: no expectation. The observed child did not attend to the teacher when there was no expectation to do so.	100	100	100	99
Off task: expectation. The observed child did not attend to the teacher when there was an expectation to do so.	5	1	3	4
Off task: no expectation. The observed child attended to the teacher when there was no expectation to do so.	0	0	0	1

Behavior Stream Data by Model

DEFINITION	ENGELMANN-BECKER	BANK STREET	BUSHELL	OPEN	
ADDRESSING THE TEACHER: EXPECTATION. This category examines the observed child's ongoing activity in terms of its demands for addressing the teacher.					
Primary. Addressing the teacher is a continuous requirement of the observed child's ongoing activity.	42	14	11	20	*
Secondary. Addressing the teacher is an intermittent requirement of the observed child's ongoing activity.	13	47	50	36	*
Tertiary. Addressing the teacher is not an operating expectation.	44	39	39	44	
ADDRESSING THE TEACHER: BEHAVIOR. This category codes whether or not the observed child addressed or responded to the teacher.					
Yes. The observed child is addressing and/or responding to the teacher.	30	13	11	22	*
No. The observed child is not addressing or responding to the teacher.	70	87	89	78	*

Table X: BORIS Data by Model

DEFINITION 1 utterance		ENGELMANN-BECKER	BANK STREET	BUSHELL	COGNITIVE
TEACHER COMMUNICATION: AUDIENCE. This category designates whether the teacher communicated with the observed child individually, the observed child as a member of a group, or another child.	qualitative (1)				
Individual. The teacher communicates with the observed child individually.		15	21	36	31
Group. The teacher communicates with the observed child as a member of a group.		71	66	27	40
Other child. The teacher communicates with another child.		14	13	37	29
TEACHER COMMUNICATION: LANGUAGE. This category codes the form of teacher communication.	qualitative (1)				
Information.		22	24	21	28
Praise.		1	3	0	1
Criticism or ridicule.		2	1	6	5
Commands, threats or requests.		23	27	32	20
Questions.		30	23	29	28
Answers.		1	2	1	5
Reads or sings.		9	11	0	3
Unintelligible. (entries ignored in reliability calculation)		9	4	8	7
Nonverbal.		2	0	3	2
TEACHER COMMUNICATION: QUESTIONS. This category designates whether or not the teacher's questions were academic.	quantity(1)				
Academic. Questions relating specifically to the content of the formal curriculum.		12	4	5	3
Other. Non-academic questions.		2	1	1	3
OBSERVED CHILD COMMUNICATION: AUDIENCE. This category designates whether the observed child communicated with the teacher individually or in unison with a group or communicated with another child.					
Individual. The observed child addresses the teacher individually.		11	12	8	10
Group. The observed child addresses the teacher in unison with a group.		25	4	4	2
Other child. The observed child addresses another child.		9	21	15	17

Table XI: BORIS Data by Model

DEFINITION	ENGELMANN-BECKER	BANK STREET	BUSHELL	COGNITIVE
INTERACTING WITH OTHER CHILDREN: EXPECTATION. This category examines the observed child's ongoing activity in relation to the appropriateness of engaging in interactions with other children.				
Primary. Interacting with other children is either a necessary or overtly sanctioned component of the observed child's ongoing activity.	5	19	9	2
Secondary. Interacting with other children is neither a necessary nor overtly sanctioned or prohibited component of the observed child's ongoing activity.	27	44	10	83
Tertiary. Interacting with other children is clearly an inappropriate or overtly prohibited behavior in terms of the observed child's ongoing activity	67	36	81	15
INTERACTING WITH OTHER CHILDREN: BEHAVIOR. This category codes whether or not the observed child interacted with another child.				
Yes. The observed child is interacting--verbally and/or physically--with another child.	13	28	20	22
No. The observed child is not interacting--verbally or physically--with another child.	86	72	80	78
INTERACTING WITH OTHER CHILDREN: ON TASK-OFF TASK BEHAVIOR				
On task: expectation. The observed child interacted with another child in a socially acceptable manner at an appropriate time.	100	100	99	100
On task: no expectation. The observed child did not interact with another child when there was no expectation to do so.	99	98	91	99
Off task: expectation. The observed child did not interact with another child when there was an expectation for him to do so.	0	0	1	0
Off task: no expectation. The observed child interacted with another child in a socially unacceptable manner or at an inappropriate time.	1	2	9	1

Behavior Stream Data by Model

DEFINITION	ENGELMANN-BECKER	BANK STREET	BUSHELL	OPEN	
INTERACTING WITH OTHER CHILDREN: EXPECTATION. This category examines the observed child's ongoing activity in relation to the appropriateness of engaging in interactions with other children.					
Primary. Interacting with other children is either a necessary or overtly sanctioned component of the observed child's ongoing activity.	---NO DATA---	10	3	16	
Secondary. Interacting with other children is neither a necessary nor overtly sanctioned or prohibited component of the observed child's ongoing activity.		50	73	57	
Tertiary. Interacting with other children is clearly an inappropriate or overtly prohibited behavior in terms of the observed child's ongoing activity		39	23	27	
INTERACTING WITH OTHER CHILDREN: BEHAVIOR. This category codes whether or not the observed child interacted with another child.					
Yes. The observed child is interacting--verbally and/or physically--with another child.	7	21	19	25	*
No. The observed child is not interacting--verbally or physically--with another child.	93	79	81	75	*

Table XIII: BORIS Data by Model

DEFINITION	ENGELMANN-BECKER	BANK STREET	BUSHELL	COGNITIVE
UTILIZING MATERIALS: EXPECTATION. This category examines the observed child's ongoing activity in relation to the use of materials.				
Primary. Use of materials is the major if not only component of the observed child's ongoing activity.	42	68	74	76
Secondary. Materials are presented but the primary mediator of the observed child's learning experience is the teacher.	46	23	12	14
Tertiary. Materials are either not present or their use is not intended.	12	9	14	10
UTILIZING MATERIALS: MODE OF EXPECTATION. This category designates the type of material that the observed child is expected to use.				
Manipulative. The observed child is expected to actively manipulate physical objects.	6	28	12	37
Symbolic. The observed child is expected to use materials to produce or decode conventional symbols as in writing or reading.	62	32	65	27
Fantasy. The observed child is expected to use objects or self for purposes of imitative or socio-dramatic play.	0	0	1	1
Motor. The observed child is expected to engage in large motor behavior with or without the use of equip.	3	10	4	8
Audio-visual. The observed child is expected to use materials which involve looking and/or listening only.	16	21	4	18
None. The observed child is not expected to use materials.	12	9	14	9
UTILIZING MATERIALS: BEHAVIOR. This category codes whether or not the observed child used materials.				
Yes. The observed child utilizes materials.	71	80	66	75
No. The observed child does not utilize materials.	29	20	34	25
UTILIZING MATERIALS: MODE OF BEHAVIOR. This category codes the observed child's use of materials, specifying type of material.				
Manipulative. The observed child is actively manipulating physical objects.	9	30	16	49
Symbolic. The observed child is using materials to produce or decode conventional symbols as in writing or reading.	63	32	62	24
Fantasy. The observed child uses objects or self for the purposes of imitative or socio-dramatic play.	0	0	1	1
Motor. The observed child engages in large motor behavior with or without the use of equipment.	8	14	14	8
Audio-visual. The observed child's use of materials involves looking and/or listening only.	20	23	7	23

Qualitative Collection

Behavior Stream Data by Model

DEFINITION	ENGELMANN-BECKER	BANK STREET	BUSHELL	OPEN	
UTILIZING MATERIALS: EXPECTATION. This category examines the observed child's ongoing activity in relation to the use of materials.					
Primary. Use of materials is the major if not only component of the observed child's ongoing activity.	64	73	77	80	*
Secondary. Materials are presented but the primary mediator of the observed child's learning experience is the teacher.	19	9	17	4	*
Tertiary. Materials are either not present or their use is not intended.	17	18	6	16	
UTILIZING MATERIALS: MODE OF EXPECTATION. This category designates the type of material that the observed child is expected to use.					
Manipulative. The observed child is expected to actively manipulate physical objects.	11	26	18	32	*
Symbolic. The observed child is expected to use materials to produce or decode conventional symbols as in writing or reading.	56	35	55	35	*
Fantasy. The observed child is expected to use objects or self for purpose of imitative or socio-dramatic play.	1	0	0	3	*
Motor. The observed child is expected to engage in large motor behavior with or without the use of equip.	2	1	0	0	
Audio-visual. The observed child is expected to use materials which involve looking and/or listening only.	----NO DATA-----				
None. The observed child is not expected to use materials.	17	18	6	16	
UTILIZING MATERIALS: BEHAVIOR. This category codes whether or not the observed child used materials.					
Yes. The observed child utilizes materials.	68	67	70	67	*
No. The observed child does not utilize materials.	31	32	29	32	*

Table XIV: BORIS Data by Model

DEFINITION	ENGELMANN-BECKER	BANK STREET	BUSHELL	COGNITIVE
UTILIZING MATERIALS: ON TASK-OFF TASK BEHAVIOR				
On task: expectation. The observed child used materials when there was an expectation to do so.	96	99	87	99
On task: no expectation. The observed child did not use materials when there was no expectation to do so.	88	95	87	99
Off task: expectation. The observed child did not use materials when there was an expectation to do so.	4	1	13	1
Off task: no expectation. The observed child used materials when there was no expectation to do so.	12	5	13	1
FANTASY PLAY. This category codes the type of fantasy play engaged in by the observed child.				
Toy centered. Object centered fantasy play without role taking present.	0	0	1	1
Dramatic play. Fantasy play with role taking present.	0	0	0	0
Socio-dramatic play. Dramatic play in cooperation with another role taker.	0	1	0	0
MOTOR ACTIVITY. This category codes the type of motor behavior engaged in by the observed child.				
Equipment. The observed child engages in motor behavior with large muscle or play ground type equip.	0	0	0	1
Task related. The observed child engages in task related motor behavior without equipment, as in dancing.	1	4	4	2
Routine. The observed child engages in routine motor behavior as in eating or dressing.	2	2	2	3
Extraneous. The observed child engages in extraneous motor behavior as in excessive fidgeting.	3	4	4	1
UNSOLICITED LOOKING. The category codes instances of the observed child watching the observer or others not seeking his attention.				
None. The observed child does not engage in any unsolicited watching of others.	83	87	77	92
Observer. The observed child looks at the observer for more than two seconds (excludes glancing).	8	2	7	3
Other. The observed child engages in unsolicited looking; that is, he watches other children or teachers who are not trying to solicit his attention.	9	10	16	5

Table XV: BORIS Data by Model

DEFINITION	ENGELMANN-BECKER	BANK STREET	BUSHELL	COGNITIVE
EXPECTATION CONFIGURATION. This category specifies what the primary and secondary mediators of the observed child's learning are in a given situation.				
Interacting with the teacher is primary, although materials are present.	42	9	3	0
Interacting with the teacher is primary--no materials.	8	1	1	0
Attending to the teacher is primary, although addressing the teacher is expected at times, as is attending to materials.	2	12	6	13
Attending to the teacher is primary, although addressing the teacher is expected at times--no materials are present.	1	3	6	3
Attending to the teacher is primary, although materials are present; however, there is no expectation to address the teacher.	0	1	0	1
Attending to the teacher is primary--no expectation to address the teacher or use materials.	0	1	1	0
Using materials in conjunction with other children primary, although a teacher is present.	4	6	1	0
Materials are primary, although interacting with other children or the teacher is possible.	8	10	3	32
Materials are primary, although interaction with the teacher is possible--interacting with other children is prohibited.	15	11	60	7
Utilizing materials in conjunction with other children is primary--no teacher present.	1	11	5	1
Utilizing materials is primary, although interaction with other children is possible--no teacher pres.	14	26	4	35
Utilizing materials is primary--no teacher present and interaction with other children is not sanctioned.	0	2	1	0
There is no discernable primary focus of attention	3	6	10	7

Appendix B

A Brief Description of a System for Obtaining Behavior Observation Ratings in Settings (BORIS)*

BORIS is a child-based observation scheme which is designed to obtain information about a child's pattern of interactions with teachers, peers, and materials; e.g. how he spends his time in the classroom. BORIS uses time-sampling as a unit of behavior: the observer watches the child for ten seconds and codes his behavior for the remainder of the minute. BORIS contains categories for recording the expectations operating for behavior as well as for recording actual behavior. The behavior categories will be discussed first.

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*The BORIS observation instrument was developed by the author in connection with a study of preschool language programs directed by Courtney Cazden and supported by the Ford Foundation and later with a study of pupil and teacher roles in Follow Through directed by Joseph Grannis and supported by the Office of Education.

Boris documents children's classroom experiences by coding--on the basis of ten second of observation--whether or not the observed child engaged in the following behaviors:

(C)* watching and/or listening to a teacher;

(J)* addressing and/or responding to a teacher;

(M)* interacting--verbally and/or physically--with another child;

(Q)* and utilizing materials.

(X)* Distinctions are made among manipulative, sumbolic, and fantasy use of materials, as well as motor behavior (large muscle), and purely visual or auditory experiences (watching a movie; listening to records).

If the child engaged in any of the above behaviors, further information about the observed event is recorded.

(f_2T_4)* If he attended to the teacher, her behavior is coded as nonverbal.

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*Category designation of coding sheet

Behavior Observation Ratings in Settings (BORIS)

Observer:
Time begin:
Page Number:
Time end:
Date:
Child:

Code Number
- Program
- Classroom
- Day
- Child
- Observation Interval Number

Setting Prog.
- A 1 2 3 Teacher Pace
- B 1 2 3 4 Group Cluster
- C 1 2 Material Homo.
- D 1 2 3 Prod./Perform.

(SETTING CLUSTER CODE)

Interaction

Attend to T.
- F 1 2 3 Expectation
- G 0 1 Behavior
- H 0 1 Match

Address T.
- I 1 2 3 Expectation
- J 0 1 Behavior
- K 0 1 Match

Match Child
- L 1 2 3 Expectation
- M 0 1 Behavior
- N 0 1 Match

Categories Materials
- O 1 2 3 Expectation
- P 0 1 2 3 4 5 Mat.
- Q 0 1 Behavior
- R 0 1 Match

(EXPECTATION CONFIGURATION)

Behavior Section

Communication Categories

Verbal/Nonverbal
- 1:obs. child indiv.
- 2:to/with group
- 3:other child indv.

Teacher / Child
- 1:information
- 2:criticism
- 3:teach. praise
- 4:commands
- 5:questions
- 6:answers
- 7:read/sing
- 8:unintell.
- 9:nonverbal

Content Questions
- 1:academic
- 2:other

Material Use
- 1:manp.
- 2:symb.
- 3:fant.
- 4:motor
- 5:look-listen

Material Res.
- 1:external control
- 2:self-guided

Motor Activ.
- 1:equipment
- 2:task related
- 3:routine
- 4:extraneous

Fantasy Play
- 1:toy centered
- 2:dramatic
- 3:sociodramatic

Look
- 1:observer
- 2:other

or, if verbal, the observer notes the form of language her first two utterances took: giving information; criticism; praise; issuing commands, requests or threats; asking questions; answering or responding to questions; reading a story or singing a song.

(W_1W_2)* If she asked a question a further specification is made as to whether or not the question(s) was academic -- that is, relating specifically to the content of the formal curriculum.

(T_1T_3)* In addition, the observer records to whom the teacher's behavior was directed: the observed child individually; the observed child as a member of a group; or another child.

(U_2U_4)* If the observed child addresses (or responds to) the teacher, the observer codes child behavior as nonverbal, or if verbal, notes what form his first two utterances took: information; questions; answers; etc.

(U_1U_3)* and whether or not he was speaking alone or in unison with other children (as in group singing or in answering a question directed at the group as a whole.)

If the observed child engaged in an interaction with another child the observer codes the behavior of all active participants (the ones talking, hitting, etc.)

(U_2U_4)* If the observed child was an active participant the observer records his behavior as nonverbal or verbal (including form of language) and

(U_1U_3)* further specifies that the observed child was addressing another child.

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*Category designation on coding sheet

(V_1V_2)* If the other child was an active participant his behavior is coded as nonverbal or verbal (including form of language).

(X)* If, during the ten second interval, the observed child utilizes materials the observer codes the type of use to which the material was put: manipulative; symbolic; fantasy; large motor activity; audio/visual only.

(Y)* Also, the observer notes whether or not the child's use of the material was primarily regulated by external organizing factors (teacher directives, inherent programming of materials, conventional rules or procedures) or was primarily self-guided.

(Z)* In those cases where the child engages in motor activity, the observer notes the type of motor behavior involved. Distinctions are made among motor behavior with large muscle or play ground type equipment; task related motor behavior without equipment (as in dancing);

routine motor behavior (eating and dressing); and extraneous motor behavior (excessive fidgeting.)

(AA)* In those cases where the observed child engages in fantasy use of materials the observer notes the type of fantasy play involved. Distinctions are made among toy-centered play (make-believe in regard to objects without role taking present); dramatic play (role taking is present); and sociodramatic play (role taking in cooperation with another child).

(BB)* In addition, if the child attends to the observer or engages in some other form of unsolicited watching/listening (watching the teacher scold another child instead of doing his seatwork) during the ten second interval, a notation to that effect is made.

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*Category designation on coding sheet

The categories discussed above are those concerned with recording the observed child's actual behavior during the ten second observation unit. Another set of categories is concerned with coding whether the observed child was expected to engage in the following behaviors during the ten second observation unit:

(H)* watching and/or listening to a teacher

("YES" example: the teacher reads a story to a group of children, one of whom is the observed child;
"NO" example: the observed child does seatwork while the teacher tutors another child in math);

(J)* addressing and/or responding to a teacher

("YES" example: the teacher asks the observed child a question;
"NO" example: the teacher reads a story throughout the ten second observation unit);

(N)* interacting with other children

("YES" example: the observed child engages in socio-dramatic play;
"NO" example: the observed child is doing seatwork);

(K)* utilizing materials

("YES" example: the observed child builds a structure in the block corner
"NO" example: the children sit in their seats -- with hands folded -- waiting for juice and cookies to be distributed).

(G-H; J-K; M-N; Q-R)* When the information from the above categories is examined in conjunction with the information form the "behavior" categories it becomes possible to make statements about the "match" or "appropriateness" between the child's actual behavior and the operating expectation for any given ten second observation unit. "Appropriate" or "matched" behavior can take one of two forms: engaging in a behavior that was expected (answering a teacher's question, marching to the music), or not engaging in a given behavior when there was no operating expectation to do so (not attending to or addressing the teacher when she was working with another child). Likewise, "inappropriate" or "mismatched" behavior can take one of two forms: not engaging in a behavior which was expected (not listening to the teacher read the story, not answering the teacher's question); or engaging in a behavior which was not expected or sanctioned (hitting a child; calling out an answer when the teacher had called on another child).

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*Category designation on coding sheet

Finally, there is a group of setting property categories and setting expectation categories which provide information about the context of the observed child's activity. Although these are coded for every time unit, they are much less likely to change from interval to interval than are the other categories previously discussed. These categories are designed to provide information about the structural features of the child's learning environment.

The child's setting is analyzed along the following dimensions: (A)* Teaching pacing -- the relationship of the teacher's behavior to the observed child's activity or behavior. Distinctions are made among continuous teacher involvement, direction, or participation (as in a tutorial); from situations where teacher intervention is predictable but not continuous for any given child (as when the teacher supervises and helps children doing seatwork); from situations where teacher participation is unpredictable or unexpected (as when the teacher is reading a story to a small group while the observed child paints in another area of the room).

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*Category designation on coding sheet

(B)* Group cluster -- the size of the observed child's group or activity cluster. Distinctions are made among the observed child working alone or with one other child; from small group situations (3-6); from large group situations (7-12); from whole class situations (13 or more).

(C)* Material homogeneity -- the variety of materials for members in the group cluster. Here distinctions are made between identical or shared materials or the absence of materials; from different materials or situations where one child has materials and the other does not.

(D)* Product/performance -- the homogeneity of the expected material product or, in its absence, the expected behavioral performance of the child. Here distinctions are made between identical products or behavior (all listening to a story, all tracing triangles); from different products or behavior (one child builds a house with blocks while another builds a fire station); from cooperative products or behavior (both children build a firehouse together).

(E)* The Setting Cluster Code consists of grouping all possible combinations of the Setting property categories into nine setting patterns. These are:

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*Category designation on coding sheet

Cluster Number	Description	T.P.	G.C.	M.H.	P.P.
1	tutorial situation	1	1	X	X
2	teacher directed group lesson	1	2/3	X	X
3	teacher directed whole class situation	1	4	X	X
4	teacher supervised seatwork; identical group task	2	X	X	1
5	teacher supervised work/play; different tasks	2	X	X	2
6	teacher assisted cooperative project	2	X	X	3
7	unsupervised activity; identical group task	3	X	X	1
8	unsupervised play/work; different tasks	3	X	X	2
9	unsupervised cooperative play/work	3	X	X	3

The Setting Expectation categories examine the child's ongoing activity or situation in terms of how he is expected to distribute his attention or time among teachers, other children and materials. It attempts to record what the primary and secondary mediators of the child's learning or experiences are in a given situation.

(F)* Attending to the teacher. Attending to the teacher would be considered primary in situations where such behavior is a continuous requirement of the activity at hand (tutorials, instruction sessions); and would be considered secondary in situations where such behavior becomes a requirement at various points during the child's activity (teacher supervised seatwork); and tertiary in situations where attending to the teacher is not an operating expectation (the observed child does seatwork while the teacher sets up paints in another area of the room).

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*Category designation on coding sheet

(I)* Addressing and/or responding to the teacher. Addressing the teacher would be considered primary in situations where such behavior is a continuous requirement of the activity at hand (an oral drill session); and would be considered secondary in situations where such behavior becomes a requirement at various points during the child's activity (a math lesson where the children are primarily expected to listen to the teacher but are occasionally asked questions); and tertiary in situations where addressing (or responding to) the teacher is not an operating expectation (the observed child paints while the teacher tutors another child in math).

(L)* Interacting with other children. Interacting with other children would be considered primary in situations where such behavior is either a necessary or overtly sanctioned component of the observed child's ongoing activity (sociodramatic play); and would be considered secondary in situations where such behavior is neither a necessary nor overtly sanctioned or prohibited component of the child's ongoing activity (the observed child and another child paint their own pictures at the same table); and tertiary when child-child interaction is clearly an inappropriate or overtly prohibited component of the child's ongoing activity (during an oral drill session.)

(O)* Utilizing materials. Materials would be considered primary in situations where their utilization is the major, if not only, component of the the child's activity (doing seatwork, building with blocks, painting); and secondary in situations where materials are present but the primary mediator of the learning experience is the teacher (teacher directed reading group); and tertiary in situations where materials are either not present or their use is not intended.

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*Category designation on coding sheet

With the exception that materials and attending to the teacher cannot both be recorded as primary in the same time unit, any combination of the above category designations is possible.

The Expectation Configuration category consists of grouping all possible combinations of the expectation categories into thirteen expectation patterns:

EXPECTATION CONFIGURATIONS

Code Number	Attend	Address	Child	Material
01	1	1	not 1	2
02	1	1	not 1	3
03	1	2	not 1	2
04	1	2	not 1	3
05	1	3	not 1	2
06	1	3	not 1	3
07	2	not 1	1	1
08	2	not 1	2	1
09	2	not 1	3	1
10	3	not 1	1	1
11	3	not 1	2	1
12	3	not 1	3	1
13	other than above combinations			

Appendix C

Report of Reliability Study

Data and Method Used to Compute BORIS Reliability

Data for the reliability study was collected over four mornings at the Agnes Russell School at Teachers College. An "open" classroom with family grouping (children aged 7 through 8) was used for the study. Four male children approximately 7 years old were observed on a rotating basis. 282 observation units were completed over the four mornings.

The first author's data (observer one) was used as the standard, and percentage agreement for general categories as well as particular codes within them, was calculated with the following equation:

$$\text{Percent agreement} = \frac{\text{Number of units in which an item is coded identically by observer one and observer two}}{\text{Number of units in which the item is coded by observer one}}$$

Where appropriate, agreement for certain categories was derived only from units with observer agreement in a superordinate category. When this procedure was used, an asterisk appears next to the reliability score. The following reliability tables present percent agreement for individual items within a category and for the category as a whole. A discussion of the results follows the tables.

Reliability Table 1 (based on 282 observation units)

Section of Scheme	Category	Code Item	Number of occurrences scored by Observer I	Percent of agreement (two observers)	DEFINITION
SETTING PROPERTIES	TEACHER PACING	Total	282	95	TEACHER PACING codes the extent of teacher regulation of the observed child's activity or behavior.
		1	75	99	High. Teacher direction or regulation of the observed child's activity occurs continuously.
		2	25	68	Medium. Teacher regulation or supervision of the observed child's activity occurs intermittently.
		3	182	95	Low. Teacher supervision of the observed child's activity is unexpected or at least unpredictable.
	GROUP CLUSTER	Total	282	92	GROUP CLUSTER codes the size of the observed child's activity cluster.
		1	122	93	Alone. The observed child is working alone or with one other child.
		2	110	97	Small group. The observed child is a member of a group of from 3-6 children.
		3	22	95	Large group. The observed child is a member of a group of from 7-12 children.
		4	28	57	Whole class. The observed child is a member of a group of more than 12 children.
	MATERIAL HOMOGENEITY	Total	282	94	MATERIAL HOMOGENEITY provides information about the variety of materials present in the observed child's activity cluster.
		1	128	86	Same. The observed child and the child closest to him have identical materials; are sharing the same materials; or neither has materials.
		2	154	100	Different. The observed child and the child closest to him have different materials; or only one child has materials while the other does not.
	PRODUCT PERFORMANCE	Total	282	88	PRODUCT-PERFORMANCE provides information about the variety of products or the range of behavior expected from children in the same activity cluster.
		1	59	56	Same. Identical products or behavior (all listening to a story; all tracing triangles).
		2	193	100	Different. Different products or behavior (one child builds a house with blocks while another child builds a fire station).
		3	30	77	Cooperative. Cooperative products or behavior (both children build a fire house together).
	SETTING CLUSTER	Total	282	85	SETTING CLUSTER broadly defines the child's educational setting.
		1	12	0	Tutorial. Teacher directed situation w/one child
		2	43	100	Teacher directed group lesson. Teacher directed situation with from 3-12 children.
		3	20	45	Teacher directed whole class. Teacher directed situation with more than 12 children.
		4	2	0	Teacher supervised situation, identical tasks.
		5	23	74	Teacher supervised situation, diff. individ.tasks
		6	0	0	Teacher supervised cooperative project.
		7	12	83	Unsupervised activity, identical tasks.
		8	165	97	Unsupervised situation, different individual tasks
		9	5	20	Unsupervised cooperative project situation.

Reliability Table 2 (based on 282 observation units)

Section of scheme	Category	Code Item	Number of occurrences scored by observer 1	Percent of agreement (two observers)	DEFINITION
ATTENDING TO THE TEACHER	EXPECTATION	Total	282	94	ATTENDING TO THE TEACHER: EXPECTATION. This category examines the observed child's ongoing activity in terms of its demands for attending to the teacher.
		1	72	94	Primary. Attending to the teacher is a continuous requirement of the observed child's ongoing activity.
		2	29	76	Secondary. Attending to the teacher is an intermittent requirement of the observed child's ongoing activity.
		3	181	96	Tertiary. Attending to the teacher is not an operating expectation.
	BEHAVIOR	Total	282	93	ATTENDING TO THE TEACHER: BEHAVIOR. This category codes whether or not the observed child attended to the teacher.
		1	84	79	Yes. The observed child is watching and/or listening to the teacher.
		0	198	99	No. The observed child is not watching or listening to the teacher.
	MATCH	Total	282	94	ATTENDING TO THE TEACHER: MATCH. This category codes whether or not the observed child was expected to attend to the teacher during the ten second unit.
		1	87	84	Yes. The observed child was expected to attend to the teacher during the ten second unit.
		0	195	99	No. The observed child was not expected to attend to the teacher during the ten second unit.
ADDRESSING THE TEACHER	EXPECTATION	Total	282	85	ADDRESSING THE TEACHER: EXPECTATION. This category examines the observed child's ongoing activity in terms of its demands for addressing the teacher.
		1	5	80	Primary. Addressing the teacher is a continuous requirement of the observed child's ongoing activity.
		2	76	65	Secondary. Addressing the teacher is an intermittent requirement of the observed child's ongoing activity.
		3	201	93	Tertiary. Addressing the teacher is not an operating expectation.
	BEHAVIOR	Total	282	97	ADDRESSING THE TEACHER: BEHAVIOR. This category codes whether or not the observed child addressed or responded to the teacher.
		1	26	69	Yes. The observed child is addressing and/or responding to the teacher.
		0	256	99	No. The observed child is not addressing or responding to the teacher.
	MATCH	Total	282	96	ADDRESSING THE TEACHER: MATCH. This category codes whether or not the observed child was expected to address the teacher during the ten second unit.
		1	25	68	Yes. The observed child was expected to address the teacher during the ten second unit.
		0	257	99	No. The observed child was not expected to address the teacher during the ten second unit.

Reliability Table 3 (based on 282 observation units)

Section of Scheme	Category	Code Item	Number of occurrences scored by Observer 1	Percent of agreement (two observers)	DEFINITION
INTERACTING WITH OTHER CHILDREN	EXPECTATION	Total	282	84	INTERACTING WITH OTHER CHILDREN: EXPECTATION. This category examines the observed child's ongoing activity in relation to the appropriateness of engaging in interactions with other children.
		1	46	54	Primary. Interacting with other children is either a necessary or overtly sanctioned component of the observed child's ongoing activity.
		2	200	98	Secondary. Interacting with other children is neither a necessary nor overtly sanctioned or prohibited component of the observed child's ongoing activity.
		3	36	44	Tertiary. Interacting with other children is clearly an inappropriate or overtly prohibited behavior in terms of the observed child's ongoing activity
	BEHAVIOR	Total	282	94	INTERACTING WITH OTHER CHILDREN: BEHAVIOR. This category codes whether or not the observed child interacted with another child.
		1	70	79	Yes. The observed child is interacting--verbally and/or physically--with another child.
		0	212	99	No. The observed child is not interacting--verbally or physically--with another child.
	MATCH	Total	282	94	INTERACTION WITH OTHER CHILDREN: MATCH. This category codes whether or not the observed child was expected to interact with other children during the ten second unit.
		1	62	81	Yes. The observed child was expected to interact with other children during the ten second unit.
		0	220	98	No. The observed child was not expected to interact with other children during the ten second unit.

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Reliability Table 4 (based on 282 observation units)

Section of Scheme	Category	Code Item	Number of occurrences scored by observer 1	Percent of agreement (two observers)	*reliability derived from units with observer agreement in a superordinate category DEFINITION
UTILIZING MATERIALS	EXPECTATION	Total	282	93	UTILIZING MATERIALS: EXPECTATION. This category examines the observed child's ongoing activity in relation to the use of materials.
		1	202	99	Primacy. Use of materials is the major if not only component of the observed child's ongoing activity.
		2	56	93	Secondary. Materials are presented but the primary mediator of the observed child's learning experience is the teacher.
		3	24	33	Tertiary. Materials are either not present or their use is not intended.
	MODE OF EXPECTATION	Total	282	88	UTILIZING MATERIALS: MODE OF EXPECTATION. This category designates the type of material that the observed child is expected to use.
		1	65	95	Manipulative. The observed child is expected to actively manipulate physical objects.
		2	139	96	Symbolic. The observed child is expected to use materials to produce or decode conventional symbols as in writing or reading.
		3	4	100	Fantasy. The observed child is expected to use objects or self for purposes of imitative or socio-dramatic play.
		4	8	63	Motor. The observed child is expected to engage in large motor behavior with or without the use of equip.
		5	42	86	Audio-visual. The observed child is expected to use materials which involve looking and/or listening only.
		0	24	38	None. The observed child is not expected to use materials.
	BEHAVIOR	Total	282	84	UTILIZING MATERIALS: BEHAVIOR. This category codes whether or not the observed child used materials.
		1	181	89	Yes. The observed child utilizes materials.
		0	101	74	No. The observed child does not utilize materials.
	MODE OF BEHAVIOR	Total	159	94*	UTILIZING MATERIALS: MODE OF BEHAVIOR. This category codes the observed child's use of materials, specifying type of material.
		1	48	92*	Manipulative. The observed child is actively manipulating physical objects.
		2	73	96*	Symbolic. The observed child is using materials to produce or decode conventional symbols as in writing or reading.
		3	2	100*	Fantasy. The observed child uses objects or self for the purposes of imitative or socio-dramatic play.
		4	8	75*	Motor. The observed child engages in large motor behavior with or without the use of equipment.
		5	28	96*	Audio-visual. The observed child's use of materials involves looking and/or listening only.
	MATCH	Total	282	80	UTILIZING MATERIALS: MATCH. This category codes whether or not the observed child was expected to utilize materials during the ten second unit.
		1	188	88	Yes. The observed child was expected to use material during the ten second unit.
		0	94	64	No. The observed child was not expected to use materials during the ten second unit.

Reliability Table 5 (based on 282 observation units)

Section of Scheme	Category	Code Item	Number of occurrences scored by observer 1	Percent of agreement (two observers)	DEFINITION
BEHAVIOR CONTENT CATEGORIES	MATERIAL REGULATION	Total	158	88*	MATERIAL REGULATION. This category codes the extent to which the observed child's use of materials is regulated by external organization factors.
		1	114	96*	External. The observed child's use of materials is primarily regulated by external organization factors such as teacher directives, or "programmed" materials.
		2	44	68*	Internal. The observed child's use of materials is primarily self-guided.
	FANTASY PLAY	Total	2	100*#	FANTASY PLAY. This category codes the type of fantasy play engaged in by the observed child.
		1	0	0*	Toy centered. Object centered fantasy play without role taking present.
		2	0	0*	Dramatic play. Fantasy play with role taking present.
		3	2	100*	Socio-dramatic play. Dramatic play in cooperation with another role taker.
	MOTOR ACTIVITY	Total	5	80*#	MOTOR ACTIVITY. This category codes the type of motor behavior engaged in by the observed child.
		1	0	0*	Equipment. The observed child engages in motor behavior with large muscle or play ground type equip.
		2	1	100*	Task related. The observed child engages in task related motor behavior without equipment, as in dancing.
		3	0	0*	Routine. The observed child engages in routine motor behavior as in eating or dressing.
		4	4	75*	Extraneous. The observed child engages in extraneous motor behavior as in excessive fidgeting.
	UNSOLICITED LOOKING	Total	282	88	UNSOLICITED LOOKING. The category codes instances of the observed child watching the observer or others not seeking his attention.
		0	236	92	None. The observed child does not engage in any unsolicited watching of others.
		1	25	72	Observer. The observed child looks at the observer for more than two seconds (excludes glancing).
		2	21	71	Other. The observed child engages in unsolicited looking; that is, he watches other children or teachers who are not trying to solicit his attention.

*reliability derived from units with observer agreement in a superordinate category.

#too few occurrences for accurate estimate of reliability

Reliability Table 6 (based on 282 observation units)

Section of Scheme	Category	Code Item	Number of occurrences scored by observer 1	Percent of agreement (two observers)	DEFINITION
EXPECTATION CATEGORIES	EXPECTATION CONFIGURATION	Total	282	76	EXPECTATION CONFIGURATION. This category specifies what the primary and secondary mediators of the observed child's learning are in a given situation.
		1	5	80	Interacting with the teacher is primary, although materials are present.
		2	0	0	Interacting with the teacher is primary--no materials.
		3	26	81	Attending to the teacher is primary, although addressing the teacher is expected at times, as is attending to materials.
		4	6	33	Attending to the teacher is primary, although addressing the teacher is expected at times--no materials are present.
		5	16	63	Attending to the teacher is primary, although materials are present; however, there is no expectation to address the teacher.
		6	1	100	Attending to the teacher is primary--no expectation to address the teacher or use materials.
		7	3	0	Using materials in conjunction with other children primary, although a teacher is present.
		8	23	57	Materials are primary, although interacting with other children or the teacher is possible.
		9	0	0	Materials are primary, although interaction with the teacher is possible--interacting with other children is prohibited.
		10	25	60	Utilizing materials in conjunction with other children is primary--no teacher present.
		11	141	96	Utilizing materials is primary, although interaction with other children is possible--no teacher pres.
		12	10	0	Utilizing materials is primary--no teacher present and interaction with other children is not sanctioned.
		13	26	46	There is no discernable primary focus of attention

Reliability Table 7 (based on 282 observation units)

Section of Scheme	Category	Number of occurrences scored by observer 1	Percent of agreement (two observers)		DEFINITION
TEACHER COMMUNICATION	AUDIENCE	Total	85	85*	TEACHER COMMUNICATION: AUDIENCE. This category designates whether the teacher communicated with the observed child individually, the observed child as a member of a group, or another child.
		1	26	85*	Individual. The teacher communicates with the observed child individually.
		2	46	91*	Group. The teacher communicates with the observed child as a member of a group.
		3	13	62*	Other child. The teacher communicates with another child.
	LANGUAGE	Total	56	80*	TEACHER COMMUNICATION: LANGUAGE. This category codes the form of teacher communication.
		1	21	91*	Information.
		2	0	0*	Praise.
		3	0	0*	Criticism or ridicule.
		4	7	43*	Commands, threats or requests.
		5	26	81*	Questions.
		6	0	0*	Answers.
		7	2	100*	Reads or sings.
		8	X	X	Unintelligible. (entries ignored in reliability calculation)
		9	0	0*	Nonverbal.
	QUESTIONS	Total	30	97*	TEACHER COMMUNICATION: QUESTIONS. This category designates whether or not the teacher's questions were academic.
		1	4	100*	Academic. Questions relating specifically to the content of the formal curriculum.
		2	26	96*	Other. Non-academic questions.

*reliability derived from units with observer agreement in a superordinate category.

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Reliability Table 8 (based on 282 observation units)

Section of Scheme	Category	Code Item	Number of occurrences scored by observer 1	Percent of agreement (two observers)	DEFINITION
OBSERVED CHILD COMMUNICATION	AUDIENCE	Total	88	83*	OBSERVED CHILD COMMUNICATION: AUDIENCE. This category designates whether the observed child communicated with the teacher individually or in unison with a group or communicated with another child.
		1	25	76*	Individual. The observed child addresses the teacher individually.
		2	7	71*	Group. The observed child addresses the teacher in unison with a group.
		3	56	88*	Other child. The observed child addresses another child.
	LANGUAGE	Total	54	82*	OBSERVED CHILD COMMUNICATION: LANGUAGE. This category codes the form of observed child communication.
		1	24	71*	Information.
		2	1	0*	Praise.
		3	0	0*	Criticism or ridicule.
		4	3	100*	Commands, threats or requests.
		5	6	100*	Questions.
		6	9	78*	Answers.
		7	2	100*	Reads or sings.
		8	X	X	Unintelligible. (entries ignored in reliability calculations)
		9	9	100*	Nonverbal.
	QUESTIONS	Total	8	88*#	OBSERVED CHILD COMMUNICATION: QUESTIONS. This category designates whether or not the teacher's questions were academic.
		1	1	0*	Academic. Questions relating specifically to the content of the formal curriculum.
		2	7	100*	Other. Non-academic questions.

*reliability derived from units with observer agreements in a superordinate category.

#too few occurrences for accurate estimate of reliability.

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Reliability Table 9 (based on 282 observation units)

Section of Scheme	Category	Code Item	Number of occurrences scored by observer 1	Percent of agreement (two observers)	DEFINITION
OTHER CHILD COMMUNICATION	LANGUAGE	Total	17	88*#	OTHER CHILD COMMUNICATION: LANGUAGE. This category codes the form of other children's communication with the observed child.
		1	10	100*	Information.
		2	0	0*	Praise.
		3	0	0*	Criticism or ridicule.
		4	0	0*	Commands, threats, or requests.
		5	2	100*	Questions.
		6	2	50*	Answers.
		7	0	0*	Reads or sings.
		8	X	X	Unintelligible. (entries ignored in reliability calculation)
		9	3	67*	Nonverbal.
	QUESTIONS	Total	3	100*#	OTHER CHILD COMMUNICATION: QUESTIONS. This category designates whether or not the other child's questions to the observed child were academic.
		1	0	0*	Academic. Questions relating specifically to the content of the formal curriculum.
		2	3	100*	Other. Non-academic questions.

*reliability derived from units within observer agreement in a superordinate category.

#too few occurrences for accurate estimate of reliability.

Discussion

With the exception of the Expectation Configuration category, general category reliability scores were 80% or above. This degree of inter-observer reliability compares favorably with what has been achieved for observation instruments of similar complexity.[1]

In our opinion, the following factors contributed to the adequacy of inter-judge reliability:

1. clear guidelines of scoring procedures and unambiguous operational definitions for category items.

2. use of a tape recorder as a timing device. Both observers wore earphones connected to the same tape recorder which had prerecorded signals indicating the observation and coding units. This meant that inter-observer coordination of timing was virtually perfect--a result which could not have been achieved by using a stop watch as a timing device.

3. use of a ten second observation unit. Our experience suggests that the use of a ten second observation unit (as opposed to one of longer duration)makes the observer's difficult task of storing, retrieving, and coding information about a child's transactions with people and objects a reasonably manageable one. Since scoring commences after completion of the observation unit (as opposed to simultaneous observing and coding) the observer's full attention may be devoted to the child's activity. Furthermore, observer recall problems are minimal with the ten second unit. Also, the fifty second coding unit was more than adequate for coding.

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[1] Carolyn Stern, Research Projects in Early Childhood Learning (Los Angeles: University of California, 1968)

The Expectation Configuration Category. The reliability score for the Expectation Configuration category (76%) fell below 80%. Although this score appears unsatisfactory it should be noted that the category is really a combination of four categories. The 76% reliability score is actually quite good since agreement for any one unit rested on the entries in four categories.

The motor activity; fantasy play; and question categories. Unfortunately, for a few of the Behavior Content Categories (designated in the reliability tables with a #) the number of observation units upon which the reliability precentage is based (e.g. the number of units in which a behavior in the category occurred) is too small to provide an accurate estimate of observer reliability.

However, with respect to the motor activity category, an earlier reliability study conducted with younger children resulted in a reliability score of 94% (based on 53 occurrences) for the same category.[2]

The communication categories. Reliability scores for the teacher, child, and other child communication categories were particularly encouraging since recording language in classrooms is often difficult. Furthermore, in computing reliability for these categories entries of "unintelligible" (by either or both observers) were ignored in the calculation.

Reliability scores for units of analysis. Reliability scores have been reported for every category scored on the BORIS observation scheme. Since reliability scores were so satisfactory it was deemed unnecessary to also include the reliability for combined categories (although these have already been reported for "setting cluster" and "expectation configuration"). However, it is important to note that in some cases the unit of analysis will consist of more than one category.

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[2] Rochelle Mayer, "A Comparative Analysis of Preschool Curriculum Models and a Description of an Observation Scheme to Record Child Behavior in Theoretically Different Classrooms." (qualifying paper submitted to Harvard University, May, 1971), p. 77.

3-D-1

Appendix D

TEACHERS COLLEGE COLUMBIA UNIVERSITY

NEW YORK, NEW YORK [illegible]

INSTITUTE FOR PEDAGOGICAL STUDIES
(212) 870-4125-26

January , 1972

Dear

Let me thank you for making it possible for us to observe in classrooms. In the hope of avoiding any confusion or misunderstanding about either the details of our visit or the nature of our research, let me review the arrangements we have made and discuss the scope of our study.

As we have discussed in our telephone conversations you will arrange for us to visit two classrooms for two consecutive days each. The school will be visited on and . The school will be visited on and . It would be most helpful for our research if the classrooms we visit are "purist" or truely representative of the Follow-Through Model. Ideally also, we should visit on days which are typical for that classroom--days not scheduled for birthday parties, gym, or class trips If you can help us in these areas it will greatly facilitate our research.

Let me describe briefly our classroom observation procedures so that the teachers involved in our study can know what to expect.

Two observers will be present in the classroom simultaneously observing the same child. While one observer records the child's behavior with respect to teachers, other children, and materials, the other observer will record the child's degree of involvement in his activity.

Four male children will be observed in each classroom. These children will be chosen randomly from a list supplied by the classroom teacher (see below). We will observe the four children on a rotating basis, staying with each about ten minutes. This procedure will enable us to observe the same child at different times throughout the school day. We plan to observe the children only while they are in the classroom itself, and we will observe the same children on both days.

We will try to be as unobtrusive as possible We plan to remain within a few feet of the child unless we find that we are distracting him. In terms of our equipment, we will have clip boards with observation sheets and a tape recorder with earphones. We will be using the tape recorder only as a timing device, listening for signals which indicate each coding cycle. The tape recorder will not be used as a recording device in the classroom.

There are three procedures that will involve the teacher. To begin with, we would like to meet with her before school on the first day of our visit to introduce ourselves and obtain a class list from which we will select six male children randomly (four for the observation and two alternates). The teacher may exclude from this list any child who she feels would react adversely to being observed or anyone else she feels should be omitted. As the selected children arrive, the teacher should identify them for us. Secondly, we would like her to explain our presence in the classroom. Although she can handle this as she sees best, we have attached a sample of the kind of statement which would be appropriate. Finally, we would like to meet with the teacher at the end of each day for a short interview to review the day's events (see attached Teacher Interview form).

Although I do not wish to burden you with a detailed description of our research, I would like to share with you some general information about the project. The Columbia Classrooms Environments Project which is directed by Dr. Joseph Grannis has been funded by the Office of Education to study Follow-Through classrooms. Direct classroom observation is being used as a means for obtaining descriptive information about children's experiences in programs with differing theoretical orientations. One of our observation techniques is designed to record a child's moment-to-moment interactions with teachers, other children and materials. We will also record information about the setting in which the child's behavior occurs, and about the extent to which his behavior corresponds to that expected by the theoretical model for the classroom. In general the data obtained will be analyzed to explore differences across programs in terms of how children are expected to spend their time and how they actually do spend their time.

A second observation instrument (which is coordinated with the first) will be used to record the observed child's level of involvement.

This will be assess through such nonverbal behavioral indices as amount of extraneous behavior and direction of body and eyes. This instrument is being tested during these observations. The involvement data will be analyzed primarily for findings concerning the relationship between setting conditions and children's level of involvement. Both of these instruments use time sampling as a unit of behavior: we will observe a child for ten seconds and then record his behavior for the remainder of the minute.

At present, we plan to use the findings from this study in several ways. A report of the study will be submitted to the Office of Education. Also, I will be using the portion of the study dealing with program differences in children's experiences as part of a doctoral dissertation which will be submitted to Harvard University. The data will be identified in terms of the program being studied, but the location of the school, and the names of the teachers and children involved in the study will be kept confidential.

Both the other observers and I would be glad to share the results of this study with you and your staff. If you would be interested to read a copy of our final report let us know so that we can make the necessary arrangements.

At present, our plan is to arrive in the evening of and to be at by the following morning so that we will have time to meet with the classroom teacher before the beginning of the school day. When we arrive we will go to the principal's office. It is our understanding that someone there will be expecting us and will introduce us to the teacher whose classroom will be used for the observation. We will follow the same procedure on the morning of when two new observers will arrive to observe in classroom two at the school.

Again, let me express my appreciation for your cooperation. I am looking forward to visiting the classrooms.

Sincerely,

Rochelle Mayer
Research Assistant

P.S. I have enclosed two copies of this letter which I hope you will give to the two teachers we will be working with. Thank you.

3-D-6

TEACHER INTERVIEW FORM

Program:
Classroom:
Dates:

I. Did you feel that today could be called a typical day in your classroom? In what ways was it typical? In what ways was it atypical?

II. Do you feel that your classroom is a "pure"________________________ classroom? Are there any ways in which you intentionally deviated from the pure hypothetical model? Explain.

III. How would you rank the four children we observed today in terms of their success in school?

HIGH____LOW

IV. On the basis of their behavior today, briefly describe the children we observed in terms of: personality characterization and school behavior (attentive, class troublemaker, hyperactive, withdrawn, etc.)

V. How would you rank the children we observed in terms of their involvement in activities today?

HIGH____LOW

Sample of Teacher Statement to Class:

Today we have two visitors in our classroom. They have come from New York City to see what we do in our classroom. They will be watching us today and tomorrow. To help them remember what they see they are going to listen to instructions from a tape recorder and take some notes on sheets of paper. They will use earphones so that the taperecorder will not disturb us. We will have to leave them alone so that they can get their work done.

Chapter 4: Involvement Ratings in Settings

Michael Greene
Fay Logan

Introduction

Since the Fourth Progress Report IRIS (Involvement Ratings In Settings) has been further operationalized and more tightly organized. Data has been collected indicating very satisfactory validity and inter-observer reliability. In addition, the results of our major study of six Follow Through classroom (two classrooms from each of the three Follow Through models) illustrate the descriptive and evaluative power of IRIS as an independent instrument as well as the possibility of using IRIS in conjunction with BORIS in order to examine precisely the role of setting characteristics in contributing to children's involvement.

The results of our progress thus far have served to strengthen our convictions of the value of: (1) developing a scale which taps the quality of a child's affective committment to his interaction within the classroom, and (2) creating a structural tool which operates sensitively to the match between a child's milieu and his cognitive level while at the same time operating insensitively in a strict sense to variable qualities in a classroom such as setting characteristics and individual cognitive levels of children. With regard to affective committment, or involvement, we feel IRIS has been shown to tap this dimension of children's behavior reliably through our measures of non-verbal behavior. With regard to the structural characteristics we believe we have shown how IRIS, since its categories are not inherently sensitive to independent factors such as setting characteristics (in any setting a child can theoretically score very high or very low in involvement), the found correlations between these independent factors and IRIS scores can be used to suggest how the former contribute to children's involvement. In other words, IRIS allows us to begin to probe for factors which influence the famous problem of the match which has to date been written about exclusively in theoretical terms.

Validity and Initial Reliability

As described in the Fourth Progress Report three "involvement experts" independently scored video-taped children in terms of their involvement in the interaction in which they were engaged in. The observations were selected portions of video-tapes from the 1970-71 data collection. Following their observations the authors independently coded, with IRIS, the same segments of children's behavior. The object of this procedure was to assess: (1) whether the experts would correlate with each other, thus giving substance to the concept of involvement, and (2) whether the judgments of the experts correlated with our IRIS derived judgments, thus determining the validity of IRIS to tap involvement.

Table 1: Correlation matrix between the three experts and the authors, n = 210.

	E-1	E-2	E-3	G	L
E-1	1.00	.795	.680	.629	.652
E-2		1.00	.662	.682	.671
E-3			1.00	.621	.581
G				1.00	.827
L					1.00

The results are presented in Table 1. The correlations involving Greene and Logan are based on a mean score derived from the ten dimensions which were rated for each observation bit. The number of observations was large enough to ensure a high level of confidence in correlation measures. Some of the found variance between the experts can be accounted for by the fact that none of them had previously directly scored subjects for involvement in any systematic fashion. Some of this variance can also be accounted for by the quality of the video-tapes. Although we selected the specific portions of tape which were coded partially on the basis of quality it still remained difficult to accurately code children when looking for such fine details as facial expression and muscle tension. Given these limitations the correlation between E-1 and E-2 of .795 is an especially powerful statistic favoring the hypothesis that there is indeed a general factor of involvement which is being tapped. The slightly lower correlations involving E-3, of .662 with E-2 and of .680 with E-1, might be accounted for by the fact that E-3 is a teacher-trainer as well as being a painter, and biases toward what she considered a good classroom environment might have skewed her judgments slightly. Confirmation of this tendency is reflected in the fact that her correlations with both authors were found to be lower than with the other two experts.

In regard to our second question it can be seen that the experts correlated less well with the authors than between themselves. This finding might be accounted for by the artifact of taking the mean of our ten ratings. Although this procedure heightens the correlation between the authors, it decreases the correlation between us and the experts due to the fact that certain of our categories such as gestural versus postural (correlations between the experts and us run between .3 and .4) and extraneous behavior (correlations run between .4 and .5) depress the overall correlation between the authors and experts. We did not perform a correlation by taking these two dimensions out, as the purpose of the procedure was only to get good statistical support indicating we were generally tapping the same involvement characteristic which the experts were. We did not simply extract these two dimensions from our scale because these two categories in particular required the visibility of the whole child's body attainable only with live observations.

In terms of a more extensive analysis of the inter-observer reliability we feel it is not appropriate to go beyond reporting our gross inter-observer correlation of .827 other than to mention that correlations between us on each of the ten factors ran between .548 and .784. The reader is advised to consult Tables 1, 5, 7 and the discussion of our two reliability studies carried out at Agnes Russell School.

In summary, we feel the results of our validation study indicated the existence of a general factor of involvement and that IRIS was to a great extent tapping this dimension of children's behavior. In addition. we felt that a more precise operationalization of our categories was in order so that higher inter-observer reliabilities could be realized. The case of the two categories having low correlations with the experts' results indicated to us the need for the procedure of factor analysis in future reliability studies as a double check on the validity of each category.

Re-operationalization

Although modifications of our ten dimensions were occurring at every point after its initial development, a major reoperationalization of all ten dimensions was worked out following our data collection in the six Follow Through classrooms. We felt at this point, after a thousand or or so observation bits each that we had learned the intricacies of each dimension in our scale. In addition, we felt that reoperationalization would provide the best medium in which the authors could reintegrate their views, and also provide the basis for another reliability study. The following category descriptions by score (from 1 to 5) should not be taken as a coding manual which can be applied by anyone who studies it thoroughly enough. Further refinements and clarifications are necessary with concomitant data collection in order to assess the factor loadings. A general description of the category followed by rating criterion is given below. The order of presentation follows the revised coding sheet. It must, however, be pointed out that a factor analysis performed on the latest reliability study, AR-2, indicates a slight change in factor loadings making the order of presentation not as logical as it might be (see discussion of factor analyses below.)

1. jerkiness vs. fluency: has to do with the degree of smoothness and coordination between phases of movement; rigidity and degree of relaxation seem to play a major role. In relation to the match question, hesitency suggests a mismatch while spontaneity suggests a match. This category focuses exclusively on the physical aspects of the child's behavior.
    1. much rigidity evidenced, or total limpness; transitions between phases of movement seem broken and incoherent.
    2. either short spurts of smooth relaxed transitions between movements, or an overall rigidity and tenseness evidenced but only to the degree that it sets the tone for the observation bit rather than dominating and inhibiting the child.
    3. oscillation between a tendency towards tenseness, and rigidity,

and relaxed and smooth movements and transitions.

4. either very short spurts of rigid-tense transition movements, or overall smooth and relaxed flowing movements but with some hesitation and incompleteness of transition movements,
5. observed period is dominated by smooth and flowing transitions from one behavior to the next.

2. perseveration vs. variation: has to do with the variety and repetitiveness of the child's movement. This category more than the first seems to parallel the content of the interaction in which the child is engaged, e.g., if the child is doing simple arithmetic problems over and over, or to use a classical example writing "I will not chew gum in school" one hundred times, his movements will most likely reflect the nature of his activity and he will achieve a very low score in terms of perseveration vs. variation,

    1. a single repetitive or circular movement; classic autistic movement; movement seems to be getting no where.
    2. short spurts of purposeful behavior deviating from the dominant repetitiveness; looking around in a somewhat exploratory, but also lackadaisical manner for something to get "involved" in (it should be noted that this is a frequent occurance and will therefore be referred to in other categories).
    3. diversity evidenced in child's movement but tending towards random rather than purposeful changes.
    4. purposive and diverse movements evidenced with some repetition or lack of logical sequentiality between phases of movements.
    5. no or very little repetition; a sequence of complete purposeful movements.

I R I S (involvement ratings in settings)

date:

place:

sheet #:

subject:

coder:

1 2 3 4 5

tense; limp; resigned
1 sets tone for ½ time
oscillation btwn poles
5 sets tone for ½ time
relaxed; controlled; flowing

JERKINESS VS FLUENCY

single, repetitive act; autistic
exploratory gazing; ½ of 1
random diversity; slightly purposive
purposively diverse w/ slt. repetit.
sequence of complete purposive acts

PRSVRTN VS VARIATION

hands and face
forearms and hands
shoulder thru arm
some torso, tonus good
full torso most of time

GESTURAL VS POSTURAL

seated | standing

no movement; small localized
arms or legs
arms and legs; some ctr body
½, ctr body
outward flow of move. from ctr b.
2 dimensional movement
greater than ½ 2 dimensional
bipolar behavior
greater than ½ 3 dimensional
3 dimensional movement

SHAPING

all
½ - 3/4
less than ½
less than ¼
none

EXTRANEOUS BEHAVIOR

very low
low
casual
high
very high

PHENOMENAL PROXIMITY (average)

no visual contact; turning away
½-½ looking away; neutral body slant
exploratory gazing; ½ looking away
almost total eye contact, neu-pos bs
100% eye contact, pos body slant

DIRECTION

passive, attention wanders
½: 1
bimodal behavior
½+ ½
sharp, clear, aware, no hesitation

BOUNDARIES

contradictory
conflicting
complementary
supportive
right on the mark

EXGGRTD/UNDRSTD VS APPROP

2+ alternatives, high rate of trans.
1 alt. w/ high rate; 2 alt. w/ med
1 alt. w/ medium rate of transition
1 alt. w/ low rate
no, brief alternative

FRAGMENTED VS RELATIONAL

REMARKS

3. gestural vs. postural: differentiates between peripheral movements generated from and with the limbs and/or face, and movements which are generated from the central body flowing outward. This category in particular was adopted from literature and coursework at the Dance Notation Bureau (see Fourth Progress Report); since its manifestation is influenced by body position we have divided its definition in terms of whether the child is seated or standing, the main stance of the child during the observation period was coded for, (see coding sheet) and the data from both positions were treated as a single category.

Seated:

1. movement limited to and isolated in face and/or hands.
2. movement limited to and isolated in forearm, lower leg, and head.
3. movement limited to and isolated in whole arms and/or whole legs.
4. some torso movement evidenced but major portions of movements still emanating from arms and legs.
5. all or almost all of movement emanating from the torso.

Standing:

1. no or little movement localized in the forearms or lower leg.
2. movement limited to whole arms and/or legs.
3. movement dominated by arms and legs but some central body movement evidenced.
4. torso movement frequent but not dominating whole observation period.
5. all or almost all of movement emanating from the torso.

4. shaping: has to do with the richness or expressiveness of the movement; defined in terms of a continuum from 3-dimensionalized or sculptured movement to 2-dimensionalized and flat movement. These characteristics are abstracted from whatever movement is evidenced whether it be just

finger movements or torso movements (this last point is emphasized because of the initial interpenetration of shaping and gesture vs. posture AR-1 r=.863.)

1. exclusively or almost exclusively 2-dimensionalized and flat movement.
2. greater than one half of observation period with 2-dimensionalized movement with occasional spurts of richer 3-dimensionalized movement.
3. oscillation between a tendency towards 2-dimensionalized movement and 3-dimensionalized movement.
4. greater than one half of observation period with 3-dimensionalized movement with occasional spurts of 2-dimensional movement.
5. exclusively or almost exclusively 3-dimensionalized and well sculptured movements.

5. extraneous behavior: defined as movement unrelated to the child's primary interaction; common examples are scratching parts of the body, and biting fingernails and pens, although it must be kept in mind that these behaviors are not considered extraneous if they are the main focus of attention. Extraneous behavior is rated exclusively in terms of amount of time in which extraneous behavior is engaged in during the observation period, and not on the basis of its quality. It is important to note that extraneous behavior always occurs along side some "major" behavior and never soley by itself.

   1. all or almost whole observation period.
   2. 1/2 - 3/4 of the observation period.
   3. 1/4 - 1/2 of the observation period.
   4. some but not more than 1/4 of the observation period.
   5. no extraneous behavior.

6. phenomenal proximity: this category remains based on an empathic intuitive judgment of how involved the child is in his interaction. We have maintained this category because if its satisfactory reliability, and as a limited confirmation of the validity of other categories by virtue of their correlation with phenominal proximity. Its base, of course, is primarily analytic and therefore cannot be adequately operationalized in behavioral terms.
7. direction: has to do with body posture and especially eye contact with the source of interaction; for instance, if a child is talking with a friend in an involved manner he is most likely looking at his friend and leaning toward him.
    1. little or no eye contact with body slant negative to neutral; continual turning away and looking in many directions.
    2. frequent brief periods of looking away and neutral body slant.
    3. some looking away but primarily focused in with neutral to slightly positive body slant; exploratory gazing (see perseveration vs. variation).
    4. almost total eye contact with neutral to positive body slant.
    5. total eye contact with constant body slant towards source of interaction.
8. boundaries: has to do with the degree of active control a child has over what he is doing; can be most easily judged from the degree of assertiveness vs. passivity in the child's movements. This category cannot be isolated from the content of activity as it has to do with the degree of control and knowledge of the activity. It is difficult to describe completely on behavioral terms and more molar terms will be used in its description.

1. passive resigned attitude towards activity; seems that the activity moulds the child rather than the child taking an active role in the interaction (Piaget's accomodation); child seems to be lost.
2. mostly the above resigned attitude is prevalent but the feeling of being lost is only slightly apparent.
3. significant spurts of active control are present and the child seems to oscillate between control and passivity; a sort of silent struggle to gain complete control is apparent.
4. child seems to really be on top of the activity with only occasional bits of passivity; sometimes overreacts by too rigidly controlling the situation without attempting to really understand it.
5. child seems very aware of what is going on and in smooth control of the situation.

9. exaggerated/understated vs. appropriate: this is a somewhat subjective judgment (although reliability has consistently been satisfactory) of the appropriateness of the child's movement relative to whatever he is engaged in and therefore the specific behavior varies with the nature of the task; for instance, what is appropriate for silently resting their heads on their desks is vastly different than the appropriate behaviors for playing dodgeball outside. A clear somewhat molar description is therefore appropriate.
   1. movement is contradictory to the nature of the interaction.
   2. movement is conflicting occasionally with the nature of the interaction.
   3. movement is complementary to the nature of the interaction.
   4. movement is support to the nature of the interaction.
   5. movement is right on the mark in relation to the nature of the interaction (a fine match.)

10. fragmented vs. relational: has to do with the nature of transitions in terms of the content of the material with which the child is interacting, and its degree of relatedness of phases. The relatedness is considered in terms of the number and rate of alternative phases, or phases which are unrelated to the primary phase of activity; for example, if a child who is engaged in a workbook looks up frequently at another group of children he has one alternative and a high rate of transitions.

    1. two or more alternatives with a high rate of transition.
    2. one alternative with a high rate of transition, or two alternatives with a medium rate of transitions.
    3. one alternative with a medium rate of transitions.
    4. one alternative with a low rate of transitions.
    5. no alternatives or only a momentary one due to an unusual happening in the child's surround.

A discussion of the inter-observer reliability of these categories can be found in the section entitled AR-2 reliability, while a discussion of an earlier version of the operationalization (one for which the six classroom study was based) can be found in the section entitled AR-1 Reliability. Intimately associated with the reliability results are the results of the three factor analyses performed on the data from AR-1, the six classroom study, and AR-2. It was thought best to discuss these results here since to be properly discussed they must be put into the perspective of the definitions of the categories themselves.

Table 2: AR-1 Adjusted Factor Loadings
and Communalities.

	Factor 1	Factor 2	Communalities
jerkiness vs. fluency	.1440	.7968	.6556
perseveration vs. variation	.1774	.8928	.8286
gestural vs. postural	-.0274	.9298	.8654
shaping	.0047	.9210	.8483
extraneous behavior	.6959	.0232	.4848
phenomenal proximity	.8912	.2146	.8403
direction	.8819	.1408	.7676
boundaries	.9117	-.0064	.8436
exaggerated vs. appropriate	.8710	.1775	.7903
fragmented vs. relational	.9274	-.0064	.8602

Table 3: Six Classroom Study Adjusted Factor Loadings and Communalities.

	Factor 1	Factor 2	Communalities
jerkiness vs. fluency	.5848	.5501	.6447
perseveration vs. variation	.5452	.5997	.6570
gestural vs. postural	.1344	.8533	.7461
shaping	.2169	.8470	.7646
extraneous behavior	.7496	-.1468	.5836
phenomenal proximity	.8851	-.2040	.8251
direction	.7809	-.2396	.6673
boundaries	.8751	-.2342	.8207
exaggerated vs. appropriate	.8399	-.0395	.5836
fragmented vs. relational	.8702	-.265	.8279

Table 4: AR-2 Adjusted Factor Loadings and Communalities.

	Factor 1	Factor 2	Communalities
jerkiness vs. fluency	.1365	.1773	.0501
perseveration vs. variation	.6857	-.2297	.5230
gestural vs. postural	.7903	-.1389	.6439
shaping	.3947	-.7806	.7653
extraneous behavior	.5377	-.7286	.8201
phenomenal proximity	.6746	-.0475	.4573
direction	.8470	.3026	.8091
boundaries	.7595	.4582	.7869
exaggerated vs. appropriate	.8376	.3764	.8433
fragmented vs. relational	.8240	.0674	.6835

The observations in AR-1 and the six classroom study were, as mentioned earlier, based upon the same earlier and less well articulated version of the operationalization of the ten categories (this earlier version will not be presented in this report for space and organizational considerations). The factor analysis of both sets of data were therefore expected to be identical and in fact turned out this way. In both cases categories one through four above fell into what we have since labeled factor 2 and categories five through ten fell into what we have since labeled factor 1 (see Tables 2 and 3). (It should be noted that the factor analyses were performed upon a ten by ten correlation matrix derived by summing the scores of Greene and Logan for each category during each observation bit.) In the initial probing into the meaning of each factor we decided that factor 1 is more closely attuned to the initial structural characteristics of the child's involvement within the interaction in which he was engaging; and factor 2 tapped the child's level of movement ability, sort of like a physical movement ability quotient, and prone to reflect individual capabilities rather than a structural property in which any child once involved could score high on. Our rationale for this view of factor 2 was derived from: (1) our somewhat intuitively based experience in observing children, i.e., there seemed to be inordinate individual differences in these categories, some children however involved never scoring high on them, (2) the fact that these four categories were originally operationally defined in more purely physical terms than the other categories, and (3) the fact that it was significantly independent of phenomenological proximity. Upon later reviewing the results of subsequent analyses we found factor 2 to be sensitive in the direction of factor 1, but not as quantitatively sensitive as factor 1 (see analysis of setting clusters) and t-test analyses below). This indicates to us confirmation of our initial thoughts that factor 2 was primarily a reflection of individual differences in physical ability, in addition to being secondarily sensitive to involvement as indicated by its isomorphism to factor 1 in terms of direction of findings. For this reason all results given below will be presented with both factors, but factor 2 will only be given cursory discussion.

The results of the factor analysis of AR-2 (the reliability study performed after reoperationalization) yielded minor though significant shifts in the factor loadings. (See Table 4.) Five categories are affected by these shifts: jerkiness vs. fluency, perseveration vs. variation, gestural vs. postural, shaping, and extraneous behavior. Jerkiness vs. fluency does not load significantly on either factor, i.e., only .05 of its variance is accounted for by either factor. We can only surmise that by defining it as so purely physical it's relationship to involvement was diminished to almost nothing. Perseveration vs. variation and gestural vs. postural both shifted significantly from factor 2 to factor 1. The shift of perseveration vs. variation can partially be explained by the clarification with reoperationalization of its strong parallel to the nature of the interaction in which the child is engaging. The shift of gestural vs. postural is most likely due to the realization that it's scoring was previously biased in favor of standing vs. seated children. It probably was tapping characteristics more closely akin to factor 1 all along but due to this biasing affect always fell into factor 2. The shifts in shaping and extraneous behavior are more difficult to explain. Both categories loaded negatively in factor 2, and in fact make up factor two in its totality once jerkiness vs. fluency is thrown out. All that can be suggested now is that this new factor 2 might reflect a measure of hyperactivity, that is, a hyperactive child would always score high on extraneous behavior while at the same time might be picked up as having characteristically 3-dimensionalized movement. In summary, this study yields basically one significant factor composed of seven categories:

1. perseveration vs. variation
2. gestural vs. postural
3. phenomenal proximity
4. direction
5. boundaries
6. exaggerated/understated vs. appropriate
7. fragmented vs. relational

The above factor will probably be taken as our starting point in future studies. Perhaps one final inter-observer reliability study will be made to confirm the stability of these results.

AR-1 Reliability Study

After the concept validation and first reliability study using videotaped segments from the classrooms of the 1970-71 data collection of CCEP, the next step was observation and use of the instrument in a live classroom situation. Teachers College is fortunate to have observation privileges in the Agnes Russell School for its students and research staff. A portable cassette recorder with a dual earplug was the team's solution to synchronization of observation periods (between the authors) without being obtrusive. Greene and Logan observed the "upper cluster" composed of children from 9 to 12 years old. Children were selected in a random manner to be watched for ten observation units at a time. Although the classroom situation was one of great mobility for the children, we were able to follow each child for ten consecutive minutes. Over a three day period, 200 observation bits were collected. To facilitate operationalization of the individual categories, the authors took time between observing children (approximately once every ten minutes) to discuss their thoughts on the preceding segment of behavior. This procedure served to prevent the authors from radically diverging in their scoring, and in addition proved to be valuable in interpreting the results of the correlation matrices and in eventually reoperationalizing IRIS as a whole.

This data was next prepared for data processing. A 20 X 20 correlation matrix derived from the ten categories for each coder yielded inter-observer reliability for the individual categories ranging from .62 for exaggerated/understated vs. appropriate to .91 for extraneous behavior allowing us to accurately see which categories needed further operationalization and discussion. Next, as stated earlier, a factor analysis was performed upon a 10 X 10 correlation matrix formed by summing the scores for Greene and Logan for each observation bit. Briefly, two factors emerged, factor 1 tapping what we felt was distinctly involvement qua involvement, and factor 2 having more to do with the physical dexterity of the child (for a detailed discussion of this factor analysis see the section on reoperationalization).

Since in the six classroom study we made use of the IRIS solely in terms of each factor as a whole, a 4 X 4 correlation matrix was generated indicating the correlations between Greene and Logan on each of the two factors. As can be seen from Table 5 reliability for factor 1 between Greene and Logan was .748 and for factor 2 was.695. Cross factor correlations are insignificant. Although the reliability for each of the two

Table 5: AR-1 Correlation Matrix Between Observers by Factors.

	G - 1	G - 2	L - 1	L - 2
Greene - Factor 1	1.00	.210	.748	.042
Greene - Factor 2		1.00	.167	.695
Logan - Factor 1			1.00	.020
Logan - Factor 2				1.00

was not exceptionally high, confirmation of reliability being satisfactory was reinforced when the factor analysis of the six classroom study turned out identical to those found in this AR-1 study. Some of the variance might be accounted for by the fact that both observers were orienting themselves to a new situation in terms of equipment, methods, and subjects.

Six Classroom Study

The major single study which has occupied our time since the Fourth Progress Report has been our joint observations with BORIS of six exemplar classrooms, two each from Engelmann-Becker, Bank Street, and Bushell. Greene and Logan observed in three classes, one each of the above programs. It should be noted that a third Bank Street classroom was subsequently observed due to the fact that the data was biased in one of the original classrooms due to an unrepresentative sample of boys (two boys who barely spoke English were observed), in terms of an extraordinary high ratio of girls compared to boys, and because of the teacher having laryngitis for the second day of observation. Each classroom was observed for two consecutive days. Within each classroom four children were chosen with a random number table from a list of boys whom the teacher considered unexceptional.

The four boys were observed using a random block design throughout the day. Any extraordinary activities such as gym, special religious classes, and lunch were excluded from coding. The amount of normal classroom time employed for coding was maximized as far as possible. The procedures for coding are the same as those described in AR-1 except that instead of having matched observations between two IRIS observers they were matched between an IRIS observer and a BORIS observer. At the end of each day we asked the teacher a number of questions primarily designed to assess the normalcy of the day and the representativeness of the classroom with respect to the model. For an analysis of this data see Chapter 3. One question, however, did have direct relevance to IRIS. The teacher was asked to rate the four children observed in terms of their involvement for each day. Unfortunately, due to the rush at the end of the day teachers did not all respond appropriately to this question.

For a discussion of the inter-observer reliability and factor analysis of the data from this study the reader is asked to refer back to the section on reoperationalization and to the section on AR-1 reliability.

Our first step in the analysis of this data was to account for the variability in involvement scores. A one-within-two-between analysis of variance procedure was adapted to our data allowing us to compute F-ratios to determine the significance of the variance contributed by: individual children (24 in all), days (first vs. second day in each classroom), morning vs. afternoon (within each day), and classroom (out of which program differences could be generated). The results of this procedure are presented in Table 6 (data presented is for factor 1). The results are unequivocal: the treatment which was found to be significant was between-within subject ratio. In other words, the variation contributed by individual child

Table 6: Analysis of Variance by Classroom (C) X Day (A) X Morning - Afternoon (B) and Subjects.

Source	df	SS	MS	F	CR =.05
C	5	1.772	.354	1.236	2.77
S(C)	18	5.164	.286		
A	1	.005	.005	.036	4.41
AC	5	.362	.072	.516	2.77
AS(C)	18	2.528	.140		
B	1	.374	.374	2.204	4.41
BC	5	.298	.059	.351	3.77
BS(C)	18	3.056	.169		
AB	1	.025	.025	.237	4.41
ABC	5	.330	.066	.615	2.77
ABS(C)	18	1.937	.107		
B Subj.	23	6.936	.301	2.44	2.03
W Subj.	72	8.919	.123		

differences outweighed the variance contributed by all the other treatments listed above. This result is disappointing as it was minimally expected that classroom differences would contribute significantly to the variation found in the IRIS distribution. However, an inspection of the mean involvements for each child by classroom does throw some light upon this analysis. Summed involvement scores for each child by classroom and program are tabled and graphed below. By inspection of the slope of the individual children grouped by classroom as a function of involvement it can be observed that there are three points at which radical changes occur. The three children representing these points, the fourth child in classroom two, the first child in classroom three, and the fourth child in classroom six, appear to play an important role in diminishing the significance of classroom differences. When these three children are eliminated the classrooms can, somewhat easily, be rated by visual inspection from highest to lowest as follows:

Table 7: Distribution of Children by Summed Involvement Scores and Rank Order Within Classroom Rank.

Program	Class	Child 1	Child 2	Child 3	Child 4
EB	1	15.66(7)	15.91(11.5)	15.91(11.5)	16.57(18)
	2	13.81(2)	14.92(5)	15.70(10)	17.72(24)*
BS	3	13.62(1)*	16.06(15)	16.12(16)	16.92(21)
	4	16.57(19)	16.61(20)	17.43(22)	17.44(23)
B	5	14.40(3.5)	15.68(85)	15.94(13)	16.45(17)
	6	14.30(3.5)	15.45(6)	15.68(8)	15.95(14)*

1. Classroom 4 Bank Street
2. Classroom 3 Bank Street

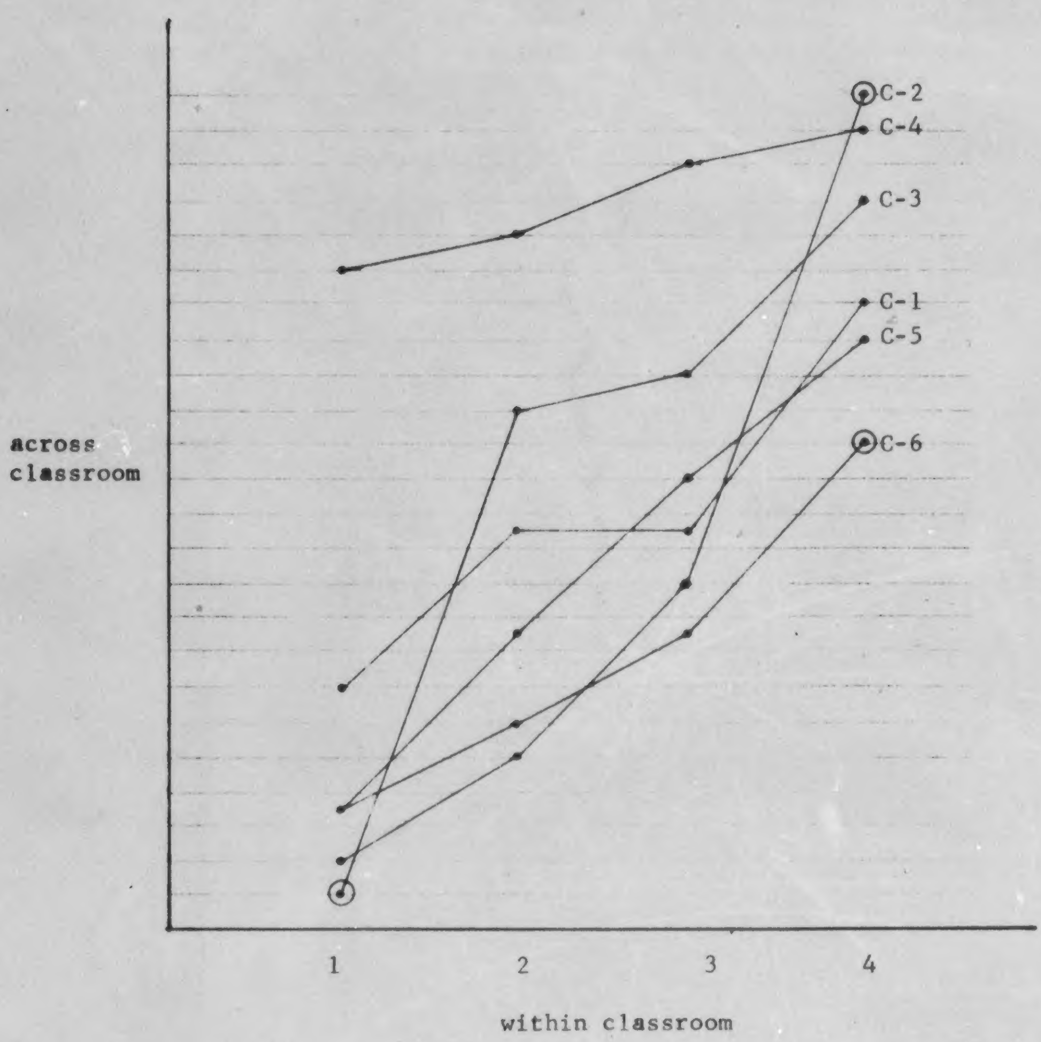

Fig. 1: Rank Order Distribution of Children Within and Across Classrooms.

3. Classrooms 1 and 5 Engelmann-Becker and Bushell
4. Classrooms 2 and 6 Engelmann-Becker and Bushell

We would like to emphasize that we are not suggesting that this analysis by visual inspection is in any way more true than the statistical analysis performed on the data, it is merely to suggest that with such small sample sizes of children as well as classrooms the experimental design was less than optimal to ask these kinds of questions and that perhaps, and only perhaps, a more extensive study might provide results more consistent with our theoretical leanings.

AR-2 Reliability Study

After the reoperationalization of the IRIS indices following the six classroom study, the authors felt that substantial enough progress in understanding and modification of IRIS and its coding format had been made to justify the time expenditure required for another reliability study. Such a study would also test if factors again graded the same way. The Agnes Russell School served as the location, but the "middle cluster" was observed (children from 6 to 9 years old). A sample of 180 paired observation bits was collected with the same coding methodology as had been used for the earlier reliability studies and for the subsequent pilot study of six classrooms. (See the discussion on AR-1 reliability.) The same procedures of data analysis that had been performed for the AR-1 reliability study were employed. The 20 x 20 inter-observer correlation matrix yielded reliability for the individual categories ranging from .62 for extraneous behavior to .99 for rigidity vs. fluency. Factor analysis of the pooled observation matrix revealed shifts in the factor loadings for the ten indices, factor 1 accounting for the variation in seven indices, factor 2 accounting for the variation in two indices and one index not related to either of these two factors (for a detailed discussion of the shifts and their implications see the section on reoperationalization above).

Since IRIS is used solely in terms of each factor as a whole (the mean of the categories in the factors is used), the inter-observer reliability for each factor considered as a whole is relevant. The 4 x 4 correlation matrix was based on factor 1 with its seven indices and factor 2 with its two indices. The results are shown in Table 8.

Table 8: AR-2 Correlation Matrix Between Observers by Factor.

	G - 1	G - 2	L - 1	L - 1
Greene - Factor 1	1.00	.453	.762	.429
Greene - Factor 2		1.00	.524	.838
Logan - Factor 1			1.00	.524
Logan - Factor 2				1.00

A reliability of .762 between the observers was obtained for factor 1 and of .838 for factor 2. This reliability is satisfactory and confirms that the reoperationalization did indeed increase the instrument's liberation from observer bias. There is no doubt that it also increased the author's understanding and use of the instrument itself. As stated earlier, another study is in order to assess the reliability of the above factor loadings in addition to once again getting a measure of inter-observer reliability.

Involvement as a Function of Setting Clusters

The first analysis performed by the authors on the merged IRIS-BORIS data (all observation bits from both coding systems paired and used in conjunction) was an attempt to answer the question -- "Does involvement vary as a function of the nine superordinate 'setting clusters' of Mayer's

BORIS?" T-tests upon the involvement means of each cluster were first considered, but an examination of the data revealed that it could not support such a procedure. The distribution of students falling within some of the clusters was skewed with one or a few children contributing all of the observations. The scores of any one child are highly related, therefore, we could not assume the independence between observations within those clusters necessary for the procedure of t-testing. Therefore, we could not statistically test for the differences in involvement means between the clusters. A direct inspection of these means, however, does give us a picture of involvement differences which supports our intuitive and theoretical biases. We do not mean to imply that an inspection of the data can be taken as conclusive. From this analysis we cannot point to the independent aspects of these clusters which are correlated with involvement, or even if the pattern or attributes of the pattern are the effective variable. Some of these questions can be handled in a more rigorous statistical manner with the analysis of variance procedure currently underway. Because the assumptions for the t-test cannot be met does not in any way preclude the fact that real differences might exist, we feel it is important to note the indicated trends of how involvement might vary as a function of setting clusters.

As shown in Table 9, the setting clusters seem to fall into four distinct groups when they are ranked according to involvement. The first (highest according to involvement) group consists of cluster 6 (teacher assisted cooperative project) and cluster 9 (unsupervised cooperative play/work). The feature which distinguishes these two clusters from the others is their cooperative mode of activity as an organizing principle. Since the earliest work of Piaget in the 1920's, and certainly throughout

Table 9: Distribution of Setting Cluster Means by Rank Order for Factor 1.

Cluster Number	Description	N	Factor 1 X	Factor 2 X
6	teacher assisted cooperative project	20	4.475	3.300
9	unsupervised cooperative play/work	78	4.464	3.385
8	unsupervised play/work different tasks	291	4.249	3.003
7	unsupervised activity, identical group task	85	4.122	2.997
4	teacher supervised seat work, identical group task	204	3.978	2.652
5	teacher supervised work/play, different tasks	569	3.931	2.687
2	teacher directed group lesson	400	3.913	2.684
1	tutorial situation	10	3.900	2.675
3	teacher directed whole class situation	264	3.578	2.670

the Dewey's work, cooperative and self-initiated work and play has been deemed to be more developmentally mature than teacher directed situations and situations in which the children worked in parallel, and to be more advanced on a more microgenetic level. That is, situations in which cooperative play or work were established in a classroom were thought to be ideally productive in terms of the child's social as well as cognitive development. In this light it is not surprising, but is certainly valuable as an experimental confirmation that these situations are the very same ones which lead to the highest involvement of children. It might be pointed out in regard to teacher assisted cooperative situations yielding higher involvement scores than unsupervised cooperative play, that the children observed were third grade children and perhaps were at that transition period in their development of becoming mature enough to engage in unassisted cooperative situations.

The second group consisting of clusters 8 and 7 (unsupervised play/work; different tasks and unsupervised activity; identical group task) can likewise be distinguished from all the other clusters (except for cluster 9) by its aspect of child centered pacing rather than teacher assisted, supervised, or directed activity. If we might be so bold as to characterize the 1960's as the decade of the structure versus unstructure debate in education, this finding seems to lend support to the value of, if not the unstructured position, at least a position which advocates the value of a child-directed structure some of the time.

The third group is composed of clusters 4, 5, 2 and 1 and, as can be seen from the table, can be characterized as teacher paced situations with small (certainly a tutorial is small) to medium sized groups, but excluding the whole class activities. The most overt implication of this finding is that children at this age find it difficult to become abosrbed while in very large, directed groups. Therefore, classrooms should be organized into small or medium sized subgroups. Of course, the final grouping consists of the sole category of the teacher directed whole class situation. It seems ironic that a consideration of the sample sizes for each of the clusters and of the nature of the experimental design's random observation selection, reveals that the classroom situations in which children become most involved are least frequent, while those in which children become least involved are the most frequent (the tutorial situation being the one exception).

It might again be pointed out that the above findings are only tentative, and that an analysis underway involves a proper analysis of variance to test for differences as a function of pacing (above findings would suggest that generally, involvement varies inversely with the degree of teacher pacing), group cluster (it is suggested that small or medium sized clusters will yield higher involvement scores than whole class situations), material homogeneity and product/performance (both of which cannot be predicted from the findings discussed above.)

IRIS-BORIS: Some Initial Questions

In this section we will discuss briefly four questions which have been generated by Mayer, Casey and the authors in concert,in relation to IRIS-BORIS data. The questions have been asked because they are interesting in the context of the pedagogical nature of this project, and as a further illustration of the capabilities of the IRIS-BORIS integration. The assumption of independence between observations necessary for the statistical procedure of t-testing could not be met within some of the clusters (1, 6, 7 and 9). This is similar to the problem which confronted the authors when considering the procedure of t-testing on the IRIS means of the setting clusters (see the discussion on setting cluster means). However, clusters 2,3,4,5 and 8 did have samples of greater than 200 and for at least two of the four questions asked, an examination of the distributions of observations in these clusters for the questions asked, showed them not to be so skewed as to strongly contradict an assumption of independence between observations, i.e., the samples were large enough and sufficienctly divided so as to insure against all of the observations being contributed by one or a few individual children. The results of valid t-tests for these clusters and for the data taken as a whole are shown in Table 10.

The first question that has been asked of the data is whether involvement varies as a function of on-off task behavior for each setting cluster and across the clusters, taken as a whole (see Chapter 3 for a complete description of setting clusters.)

Because this analysis is based upon the information coded by BORIS in conjunction with IRIS, our definition of on-task and off-task behavior must be dependent upon and congruent with the information available from BORIS. We are, therefore, in debt to Rochelle Mayer for the following definitions. On-task or "appropriate" behavior means that the child's behavior with respect to the teacher, other children and materials fulfills the expectations operating for his behavior at that time. Off-task or "inappropriate" behavior involves a) doing something the child is expected not to do, i.e., hitting another child; calling out an answer when the teacher has called on someone else, or b) not doing something he is expected to do, i.e., not doing the worksheet in front of him. A mis-match between actual bheavior and expected behavior in a child's interaction with a teacher, another child, or materials during the observed ten seconds, has been our criterion for

Table 10: T-tests for Involvement Differences Between 2 Groups (IRIS-BORIS Initial Questions).

		On-Task Off-Task				Passive-Active				13-not 13				Looking-not Looking			
		N_1	N_2	df	$t_{1,2}$	N_3	N_4	df	$t_{3,4}$	N_5	N_6	df	$t_{5,6}$	N_7	N_8	df	$t_{7,8}$
Cluster 2:	factor 1	357	43	398	5.933**									354	29	381	5.044**
	factor 2				0.267												1.22
Cluster 3:	factor 1	229	35	262	3.977									215	25	238	4.946**
	factor 2				-0.642												0.666
Cluster 4:	factor 1	180	24	202	3.022**	28	176	202	-4.364**	35	169	202	-3.876**				
	factor 2				0.170				-3.086**				-2.702**				
Cluster 5:	factor 1	468	101	567	10.270**	80	489	567	-10.428**	32	537	567	-2.211	428	31	457	7.517**
	factor 2				0.342				-2.812**				1.92				2.046*
Cluster 8:	factor 1					32	259	289	-6.026**	37	254	289	-6.151**				
	factor 2								1.009				0.944				
Across Data	factor 1	1702	219	1919	14.172**	175	1746	1919	-13.718**	129	1792	1919	-4.014**	1581	113	1692	11.974**
	factor 2				1.487				-3.523**				0.837				1.800

labelling that observation bit as off-task behavior (see Chapter 3 for a complete description of the BORIS coding procedure).

The analysis of the clusters in terms of on-off task behavior yielded differences in involvement at beyond the .01 level (see Table 10). In each case the involvement was greater during on-task as opposed to off-task behavior. It is clear that when the observed children were fulfilling actual expectations, in a teacher-directed situation (clusters 2 and 3) or teacher-supervised situation (clusters 4 and 5), they were more highly involved than when they were not fulfilling those expectations. It would be difficult for a child in such a teacher-commanded situation to participate in covert off-task behavior for periods of time long enough to develop a constant and high level of involvement. The whole-data analysis yielded the same results. We have, therefore, a very strong indication that on-task behavior is concomitant with high involvement. It seems likely to suppose that off-task behavior is evidenced due to a lack of interest in the expected behavior.

The second question to be asked of the IRIS-BORIS data was in terms of passive versus active behavior. Information about this can be generated with the behavior columns of the BORIS interaction match categories (see Chapter 3.) A zero (0) coded in all four of these columns indicates that the child did not interact with anyone or anything during the observation bit, i.e.,the child was passive. A one (1) coded in any one of the behavior columns indicates that the child did interact with someone or something during the observation bit, i.e., the child was active. The results are shown in Table 10. Each of the clusters and the data taken as a whole yielded involvement differences significant beyond the .01 level. Clearly, involvement was greater during active behavior. This finding lends support to the theses of many educators and theoreticians who believe that the education of young children must incorporate active, physical behavior in learning tasks for those tasks to be meaningful. It should be noted that factor 2 also showed the same significant differences in clusters 4, and 5 as well as across the data. Of the four questions discussed here, this is the only instance of such an occurrence. This can be explained by the physical movement characteristic which the authors feel this factor taps. Active behavior or interaction requires more physical movement than does passive behavior.

The third question parallels question two, but it is asked in terms of expectations for behavior rather than actual behavior. It was our belief that involvement would be low in situations where no primary focus was evident, i.e., where an ambiguous set of expectations was operating in relation to how the child was supposed to distribute his attention. The answer to this question can be generated with the BORIS "expectation configuration" column (see Chapter 3 for a detailed explanation and description of the expectation configuration). Configuration 01 through 12 define patterns of expected primary and secondary focus of attention for the child, while configuration 13 is an open pattern where there is no discernible primary focus of attention.

One situation in which this is likely to happen is during transition periods, i.e., when a child must wait for another child or group of children to complete an activity or leave an area before he can begin that activity or enter that area. Table 10 shows the results. Cluster 4 and cluster 8, as well as the data taken as a whole contain significantly higher involvement scores for configurations 01 through 12 (not 13) than for configuration 13. This analysis supports the hypothesis that focus, i.e., the expectation for attending, enables younger children to become involved in an activity more strongly than an ambiguous situation in which the child cannot discern the direction or object of his expected interactions.

The fourth analysis generated is not so much the answer to a question, as it is the validation of an assumption in our methodological procedure of data collection. It was the intuitive notion of Mayer, Casey and the authors that the technique of paired observers (one for IRIS, one for BORIS), reasonably stationary within a classroom and hearing timing signals inaudible to the other occupants of the room would be non-disruptive to the normal classroom behavior of the children. IRIS in conjunction with BORIS can be used to verify or to reject this notion. In the "behavior content" section of the BORIS coding sheet there is a column labeled "look." This column was coded when there was unsolicited looking behavior by the child at the observer (1) or at another person(2). It must be remembered that IRIS coding is independent of BORIS except for timing synchronization, and that IRIS taps how involved the child is in whatever he is doing, i.e., if the child is looking at an observer IRIS taps how involved he is in looking at the observer. These characteristics allow IRIS to be used as a fair index of observer unobtrusiveness. By considering only those observation bits which were not coded or that were coded one(1) in the look column, we were able to test for differences in children's involvement between observations when they were not looking at the observer and when they were looking at the observer. High involvement in looking at the observer would indicate that the observers were of inordinate interest to the children. The results are shown in Table 10. The differences between IRIS scores for not looking and looking at the observer were significant. The children were more involved when they were not looking at an observer than when they were, i.e., the observers were uninteresting. In addition, the number of instances when the children being observed looked at the observer (115) is very small in relation to the number of total observations (1919). This seems a satisfactory confirmation of the methodological assumption of unobtrusiveness.

CHAPTER 5: ANALYSIS OF THE SPRING 1971 BEHAVIOR STREAM OBSERVATIONS OF TEACHERS

Sally Kaminsky
Frances Aversa

Questions and Concepts

A major concern of this portion of the study has been to examine teacher behavior in depth, and to attempt to sift out those aspects of teacher behavior which seem to have most relevance for pupils to vary their own learning behavior. It has been postulated that teacher behavior, in particular, teacher role behavior, might be a valuable and economical way of studying the norms which are operating in a classroom and in determining the extent to which pupil variance from and conformity with such norms act to restrain or support autonomous behavior.

A central issue has been to make viable the construct of role as a means of describing teacher behavior. While one can turn to the literature for much about the theories of role, little empirical data have been accumulated which demonstrate role behavior. Seen as a cluster of behaviors around a socially held expectation, role behavior became for us a construct around which we hoped to evolve consistent dimensions, based upon observed behavior of teachers in various settings in the classroom. Following the lead from the theoretical writings of social interactionists,[1] we hoped to explore the meaning of reciprocal relationships in role enactment, and to describe the consequences of teacher role behavior upon pupil behavior in classrooms. The theory, dealing with behavior instead of norms, states that persons interacting with one another give clues regarding the expectations for behavior which they hold for one another. Commonly held reciprocal expectations operate when norms are clear, but persons modify these norms as they interact.

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[1] Rose, Arnold M. Human Behavior and Social Process. Boston, Houghton Mifflin Co., 1962.

In our analysis we have connected observed role behaviors with setting expectations, and will attempt to draw relationships between norms which are operating for behavior and actual behavior.

Certain salient aspects of the classroom structure were seen as potentially powerful contributors to dimensionalizing role behavior, one of which was the relative openness of behavior which was observed within episodes of the teachers' day. Episodes were coded for their quality of openness, from sustained to interrupted, in order to determine, firstly, the extent to which the teacher admitted pupil intrusion, and secondly, the extent to which the teacher was able to run two concurrent events at the same time. The key issue here, it seemed to us, was to question the degree to which the teacher's own agenda within an episode was rigidly adhered to in the ordinary course of the day, and the degree to which allowances were made for variations in that agenda as pupils and teachers interacted. If a teacher were seen to admit pupil intrusion, or to then incorporate or expand upon that which a pupil initiated, we would expect to see this form of behavior as a signal that norms allowing pupil initiation of events exist in the classroom. If a teacher was able to maintain episodes in which little or no child intrusion occurred we would infer other norms were in operation. Any intrusive behavior we would then expect to be sanctioned negatively.

Running concurrent episodes (Kounin[2] has referred to this phenomenon as overlapping and Smith[3] made reference to similar teacher behavior as "ringmastership") was a form of teacher behavior which would permit us to look at the relative complexity of her behavior as she interwove events and interactions over the day. Complexity in teacher behavior, we assume, will have some relationship to latitude in pupil behavior, since all children will not be behaving in the same way at the same time in a classroom where events overlap and the teacher maintains a relationship with both. Kept in mind, however, was the number of adults present in the room and the ways in which some programs might, in fact, reduce teacher behavioral complexity by providing other adults to manage the demands of the classroom.

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[2] Kounin, Jacob S. Discipline and Group Management in Classrooms. New York, Holt, Rinehart and Winston, Inc., 1970.

Openness of behavior then became one dimension to which we gave our attention, and we conceptualized that such a dimension would closely parallel the notion of heteronomy which had evolved within the project as a whole, and which was regarded as a key element in interaction with the concept of autonomy. The teacher's adaptiveness to the pupils' agenda we assumed would be recognizable in the role behavior she enacted.

Another dimension, and one in which heteronomy or orientation to others might be subsumed, is that of the authority relationship which exists between participants in the role enactment. Since the relationship of teacher to pupils assumes a difference in status between the participants, it was clear that teacher authority is a little argued fact. The extent of that authority, however, might vary in much the same respect as other dimensions, from highly dominative to highly adaptive or integrative. As early as 1959 when Marie Hughes[4] did one of the first systematic studies of

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3. Smith, Louis and Geoffrey, William. The Complexities of an Urban Classroom. New York, Holt, Rinehart and Winston, Inc., 1968.

4. Hughes, Marie M. and Associates. A Research Report. Development of the Means for the Assessment of the Quality of Teaching in Elementary Schools. University of Utah, 1959.

classroom behavior she observed the intensity of the authority (or what she called control) with which teachers behaved. In all of the classrooms which we observed, programmatic attention was given in one way or another to individualizing instruction, and one would expect that differences in the authority relationship would obtain as pupils were permitted to move at their own rate. Within classrooms, settings vary according to the prescriptiveness of pupil pacing, and it was of interest to observe the relationship of teacher authority to these different settings.

Some of the aspects of behavior which we considered most reliable as measures of the authority relationship were the control of pacing of pupil energy, and the expectations present in the situation for teacher attention and address, in which it was assumed that there were degrees of difference in the use of the teacher as a source of information. Other clues of authority differences were sought in the extent to which pupils initiated episodes, alternate episodes and interactions.

While the dimensions of authority and adaptiveness were becoming central concepts within an investigation of role, it was clear to us that the context within which the teacher and pupils were operating was a natural way in which to look at the role behavior of teachers. This was consistent with the decisions made by the project as a whole, that behavior within settings was the unit with which observations would be analyzed. This concept is assumed by Goffman[5] who believes that roles should be considered in situations, and who implies that human behavior is more understandable within situational contexts. The main setting descriptor for the context has been the concern or activity in which the teacher and pupils are interacting, and all analysis has considered the relationship of the role enactment to the concern. For brevity, as well as for conceptual clarity, all concerns, although coded for the subject matter in which the class is engaged (ie., mathematics, beginning day ritual, etc.) have been collapsed into five major categories (see Appeniix C), that which we call knowledge first priority, knowledge second priority, knowledge unspecified (which accounts for independent work, homework review, etc.), social and procedural concerns. By examining role within each of these five categories we have been able to compare teachers who are in comparable, if not exact, concerns.

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[5] Goffman, Erving. Encounters. Indianapolis, Bobbs-Merrill, 1961.

Episodes were also coded for the way in which they were expected to function for pupils over the day, and the structural relationship which one episode had with others in the same day. This was similarly conceptualized in pupil behavior streams as episode vertical function. All role behaviors have been cross tabulated with function in order to determine if relationships exist between them.

Since the data reflect only episodes in which the head teacher is present, the function of the episodes for pupils relates only to the times of the day that they are in direct association with the teacher. In Bank Street classrooms, for example, children are frequently in episodes of independent work which might function integratively for them, but in which the teacher is never present. This is so in all classrooms and our particular data has no way of keeping track of the way a day is held together for pupils when the teacher is not present, except by inference. Combined with the pupil behavior streams, however, such patterns are available.

The rationale behind looking at episode function when the teacher is present is twofold. One, there is interest in furthering our understanding of role and the way it is connected to norms of classrooms. Function, we expect, will tell us something about the way in which classroom experiences are organized for children, while its relationship to teacher role will tell us if teachers differ when they organize experiences for pupils differently. Secondly, there is the persistent notion that watching the head teacher, who may not always be present with all children all of the day, gives us the most inclusive overview of the expectations operating for all children in the classroom.

An important consideration in our development of the role concept was in the relationship of materials to behavior. Materials used in the classroom, we conjectured, have a varied relationship to the user, from those which are in the direct control of the user to those which are distanced from and, perhaps, remote from the control of the user. This has been a difficult conceptual problem for us, and one with which we are still grappling, but our basic premise has been the following. When children are in control of the materials they use they have a closer relationship to the objects for learning, and they must, to some extent, modify their behavior to accommodate the demands or limitations of the materials at hand. This is also true of the kind of behavior which the teacher can successfully operate within, that is, the teacher's behavior will be modified by the materials which she or the children are using. We further hypothesized that materials, themselves, can be dimensionalized according to some degree of relationship to the control of the user, but, as yet, this is not all worked out. Suffice it to say that we would look for differences in behavior of teachers (and according to our definition of reciprocal role enactment, of pupils) when materials were present or not, and when they were manipulable or symbolic, or others delineated in our code.

While the teacher data has not altogether provided enough information about the material relationship to pupils, we believe that the question of materials can be further explored with the instrument IRIS, as well as developed in the feedback conditions of materials which have been raised by those members of the research team who are analyzing pupil behavior streams. Feedback might be a factor in materials which would differentiate them within the category of symbolic, manipulative and others and might possibly be the means by which we can begin to consider user control over materials.

As our findings will reflect, however, material use has an effect upon teacher behavior, and gives evidence that this is a fruitful line for more investigation.

Reliability of Observations and Coding

After collecting the data and transcribing tapes of observations of teachers we attempted to ascertain the extent of confidence that we might have in the observation records. For this purpose, we compared segments of the observation records with videotaped portions of the teacher's behavior, and found that among six observers a range of 83 to 93 percent agreement was obtained when all information, regarded as centrally necessary to the coding of teacher behavior, was matched against actual behavior as represented on videotape. In all cases where discrepancies occurred it was in omission rather than in misinterpretation of reality. Since the demands for determining reliability in reporting behaviors of teachers were more stringent than necessary for coding purposes, we felt quite confident in our data as a source of information about teacher behavior. In most of the comparisons of videotape with observation record, the most frequent omission was an interaction between teacher and pupil within a minute, but the rhythm of interactions, and the relative frequency of interactions within minutes were well documented.

The development of the codes were worked out hand in hand with the research members analyzing pupil streams and it was agreed that consistency between us existed as long as the coding made sense for pupils and teachers alike. As can be compared in the coding sheets of the two observation systems (see Appendix B) teacher behavior streams were coded similarly for classroom episode structure as well as for several of the expectation columns which coincide with BORIS (i.e., teacher pacing, attend, address, etc.). How the teacher puts together a day for herself, however, was less of a concern for us than how she organizes this for pupils, and so many aspects of the code were directed toward this end. Knowledge, social and physical conditions of the classroom were considered in the coding of all interactions between pupils and teachers, as were the norms for social and academic conduct coded for special consideration.

Coding procedures were then begun, and through arduous conferences, arguments and discussions, consensus was arrived at. Two persons have coded eight teachers, two in each program, and reliability of coding ranges from the middle .80's to high .90's and in some cases 100% (see Appendix A for reliability in each code). It is apparent to us that the means to arriving at high reliability requires intensive work, as well as a conceptual consensus. Since the two persons involved in coding have been close to the conceptual development of the analysis, high reliability has been obtained.[6]

Findings

Our analysis this far indicates some strong relationships between role

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6. Crittenden, Kathleen S. and Hill, Richard J. "Coding Reliability and Validity of Interview Data," American Sociological Review, Vol. 36, No. 6, Dec. 1971.

and the variables we considered relevant. Some interesting regularities seem to exist among teachers as well as differences. In some cases, it is evident that differences are due to the idiosyncratic nature of teachers' personalities, and in others, program variations account for the differences.

One of our hypotheses which shows promising results is our notion that materials have an effect upon teacher behavior, and that differences are discernible in the extent of control she can exercise over pupil energy. It is clear from our data that when children are using different materials in the same setting, teachers are engaged in low authority task related roles (see Appendix F for the ways in which role was categorized for authority). While teachers in different programs differed in the extent to which they used low authority, the tendency to engage in less control when materials are different holds across all four programs. (see Table 5.1).

It is necessary to keep in mind, however, that in all classrooms the number of times that material homogeneity was "different", rather than the "same" or "none" was proportionally small. In Bank Street, for example, out of 911 events (events represent a minute or part of a minute) in which material homogeneity was accounted for, only 81 were "different". In Bushell classrooms, out of 636, only 88 were "different", and in Engelmann-Becker out of 977, 172 were "different." In the open classrooms the same pattern occurred with 211 occurrences of "different" materials in use out of 1034. What has to be continually kept in mind, however, is that in several of these rooms, children used different materials without the head teacher being present in the setting, and that this analysis can only represent the kinds of behaviors maintained by teachers when they are in direct contact with materials.

In all four programs, when teachers are in high or medium control the

Table 5.1: Material Homogereity and Task Related Roles by Program

Roles		Materials Same	 Different	 None
Task High	A	56.6	--	43.4
	B	79.8	1.2	19.0
	C	76.5	2.1	21.3
	D	80.7	5.7	13.5
Task Medium	A	70.8	3.4	25.8
	B	87.6	7.9	4.5
	C	77.4	12.9	9.7
	D	45.6	32.9	21.5
Task Low	A	64.3	11.9	23.8
	B	14.3	82.1	3.6
	C	57.9	33.1	9.1
	D	26.6	39.2	34.2

When teachers are in high, medium and low task related roles, the above percentages of the time spent in each role with same, different or no materials present.

A = Bank Street

B = Bushell

C = Engelmann-Becker

D = Open

materials are the same or none. In all cases, as the table indicates, there are occurrences of all dimensions of authority in all coded possibilities for materials, but the proportions of the different kinds of authority used are clearly related to presence or absence of materials and whether materials vary in the setting.

Material mode (Table 5.2) tells us more about the effect of symbolic and/or manipulative materials upon behavior. Although several other categories have been built into the code, no classroom used materials related to fantasy or motoric activity when the teacher was present.

When teachers were involved in high authority task related roles, the largest proportion of the materials used were symbolic or not present. Again, for all teachers, when they were in medium authority task roles the materials in use tended to be symbolic. Only when low authority task roles were examined did materials begin to appear as manipulative or varied, although this was least the case for Engelmann-Becker classrooms where low authority roles were enacted with children using symbolic materials. In cases such as these, information regarding feedback would be most relevant.

In general, however, most of the materials used in all of the classrooms were symbolic and most were used by children rather than in conjunction with the teacher. (Table 5.3) In many cases where the teacher used materials, she remained in control, such as the science lesson in a Bushell classroom, and her authority dominated. In Bank Street cooking provided an example of both teacher and child involvement with materials and the teacher tended toward lower authority role enactment.

While the use of materials in the classrooms has a relationship to the role behavior of teachers, the issue is not altogether clear. It appears that when children are manipulating materials they are either not in direct

Table 5.2: Material Mode and Task Related Roles

Modes

Roles		Looking Listening	Symbolic	Manipulative	Varied	Manip/Sym.	None
Task High	A	7.4	48.0	--	--	1.1	20.9
	B	--	75.0	4.8	--	1.2	19.0
	C*	--	72.2	--	--	--	2.3
	D	--	81.3	--	5.2	--	13.5
Task Medium	A	--	66.3	--	--	7.9	25.8
	B	--	88.6	7.4	--	--	4.0
	C*	--	90.3	--	--	--	9.7
	D	--	89.9	--	7.6	--	2.5
Task Low	A	--	21.0	26.6	8.4	20.3	23.8
	B	--	14.3	--	32.1	50.0	3.6
	C*	--	66.1	2.5	19.0	--	9.1
	D	--	28.5	1.3	36.1	--	34.2

When teachers are enacting high, medium and low task related roles, the above are percentages of time in each role with various material modes.

A = Bank Street
C = Engelmann-Becker

B = Bushell
D = Open

*Note in Engelmann-Becker classrooms 4.0% of high task occurred with motor mode, 2.5% with fantasy, and 3.3% of task low with fantasy. Since these modes did not appear in other programs they have been omitted from this table.

Table 5.3
Material Users and Task Related Roles

Roles		Users Child	Group	Both	Both/Teacher Controlled	N/A
Task high	A	4.0	12.6	12.6	27.4	43.4
	B	----	44.0	----	36.9	19.0
	C	----	22.0	18.0	38.6	21.3
	D	----	2.5	57.8	15.1	13.5
Task medium	A	44.9	21.3	7.9	----	25.8
	B	0.5	95.5	----	----	4.0
	C	----	90.3	----	----	9.7
	D	49.4	38.0	8.9	1.3	2.5
Task low	A	5.6	16.8	52.4	1.4	23.8
	B	----	75.0	7.1	14.3	3.6
	C	----	81.1	5.0	5.0	9.1
	D	1.9	41.8	16.5	5.7	34.2

A=Bank Street B=Bushell C=Engelmann D=Open

When teachers are in high, medium and low task related roles the above are % of time in each role with various material users.

contact with the teacher, or are in contact in which she is not dominating child pacing. The reverse, however, varies, i.e., when children are using symbolic materials teachers enact a variety of roles throughout the range of the authority dimension.

Turning to the relationship of episode function to behavior within roles, our data shows that in all classrooms, while there is exhibited a large array of role behaviors, function is considerably more restricted. Most of all episodes in all classrooms are additive, that is, the functions of the episodes are discrete, contained with themselves with little relationship to the other episodes of the day. Few classrooms have any integrative episodes (see Chapter 2 for a discussion of Basil Bernstein's distinctions between integrated and collection curricula).

Some functions have a relationship to others in that they are strongly integrative, absorbing several strands of experiences into one; others are marginally related to others in that they are preparatory or contingent, while some are collections of discrete experiences.

When an overwhelming number of episodes fall into this latter category, it is hard to talk about relationships of function to role behavior as such. Most role behaviors of teachers are observed in additive functions, and differentiation is difficult. (See Table 5.4)

However, when one looks at the role behaviors which are not occurring in large percentages in additive episodes, and then looks at teachers who enact these roles, then some differentiation can be made.

In all classrooms when teachers are behaving as organizer/planners there is a greater spread in the functions in which this behavior occurs. This is also true of material preparation behaviors (except for Bushell classrooms where this occurred most frequently in additive episodes.)

Table 5.4
% of Concerns in Additive Function

	Bank Street		Bushell		Engelmann-Becker		Open	
	1	2	1	2	1	3	1	2
Concerns knowled. 1st priority	94.4	83.3	100.0	83.3	91.7	98.0	99.6	100.0
Knowledge 2nd priority	92.3	92.85	100.0	96.97	100.00	95.65	-----	-----
Knowledge unspecified	100.0	-----*	------*	87.75	-----*	25.4	-----*	-----*
Social	100.0	------	100.0	98.85	100.0	71.4	36.67	100.0
Procedural	28.8	-----	11.5	------	8.3	5.4	------	8.8

* In most cases of knowledge unspecified the classrooms were engaged in a perspective function.

Resource and authority presence behaviors and checking behaviors tend to spread into episodes of other functions, primarily perspective and maintenance episodes.

Open classroom teachers tend to use roles in ways somewhat different from the others, having more integrative episode time in the day, and tending toward using lower authority roles more frequently in episodes other than additive. Although Bank Street teachers are in low authority task related roles as frequently as open classroom teachers (in both programs about 15% of their day) most of this kind of behavior for Bank Street teachers occurs in additive episodes, while open classroom teachers spread into perspective and integrative functions. Engelmann-Becker teachers tend to be more like open classroom teachers in this respect, with almost half of low task role behavior observed in functions other than additive. In Bushell classrooms, much less time is spent in low authority roles (4.4%) compared to the other 3 programs (Bank Street 15.7%, Engelmann-Becker, 11.9% and Open, 15.3%). In most cases, however, these Bushell low authority role behaviors, like Bank Street, are found in additive episodes.

It is obvious to us that there does not exist a strong relationship between episode function and role,

and no clear relationship between differences of teachers and function which are explainable by program rationale. Some trend does exist toward lower authority role behavior and episode organization, but our data does not make this altogether clear.

A final word on function in classroom organization: when viewed with knowledge, social and procedural concerns, function remains additive for most 1st and 2nd priority knowledge concerns, but spreads into perspective when the concern becomes knowledge, unspecified. This is so for all programs, and primarily in Engelmann-Becker and Open classrooms.

During "knowledge unspecified" concerns, function shifts from almost totally additive to a ratio between additive and perspective of approximately 3/2 in Bank Street and Bushell classrooms, 4/1 in Engelmann-Becker and 5/0 in Open classrooms. This seems to be accounted for by the constraints placed on teacher mobility and role by the respective program structures. In the Bushell structure each concern cluster is presided over by an aide or teacher at any given time, or the head teacher is organizing or directing the entire class. Little time is set aside or made in the day for the head teacher to roam the classroom and gain perspective for herself and the children on work that is not highly specified. In Bank Street, although we know that there are periods during the day that several children are involved with independent work, the structure dictates that the head teacher's primary interaction with them during this time is as a resource person while she is involved directly in higher order task priorities with other fixed groups or clusters. We rarely observed the Bank Street teacher relatively unoccupied while the larger percentage of the class was occupied with "knowledge unspecified" tasks.

In both the Engelmann-Becker and Open classrooms the structure is such that the teacher spends a more significant part of her time as an organizer/checker/helper in the perspective sense. The Engelmann-Becker structure makes this possible in its afternoon period. The open classroom teacher intersperses the function throughout her day, partially a necessity resulting from her being the only trained teacher in the classroom.

As would be expected, when classrooms are involved with procedural concerns, the functions are primarily preparatory or maintenance. However, in both Bank Street 2 and Open 1, 25 or more percent of procedural concerns appear in integrative episodes.

Episodes have been analyzed for their structural changes which signal partitions or sections within episodes. Sections occur when a change in intention takes place, and changes have been coded and analyzed for their substantive quality, i.e., whether the change involves a content, operations and/or behavior target shift.

A preliminary investigation indicates that the section parameter of "operation shift" has significant bearing on the organization and change of various teacher role behaviors within episodes. Episode structure seldom allows for changes of behavior targets within episodes. There are only twenty-two such instances across all eight classrooms, while 101 behavior target shifts, along with either content or operation shifts, signal episode changes. (See Table 5.5 on the following page.)

A content shift alone does not seem to be a factor in requiring adaptation of the teacher to a change in role behavior, while in conjunction with a shift in operation it is noticeably influential in requiring such a change. Out of 135 episode changes to which shifts are relevant, "content" changes every time and mode of operation changes 134 times. Due to their high rate of change also within episodes, however, it seems to be the shifts in behavior target which are peculiar to an episode change.

Table 5.6: Shifts within Episodes

Program	Classroom	Content/	Oper./	Beh. Target
Bushell	1	4	4	4
	2	7	16	2
E-B	1	23	26	4
	3	22	34	4
Bank Street	1	9	9	2
	2	9	17	3
Open	1	12	14	2
	2	3	9	1

Table 5.5
Within Episode Shifts Data

# of Main Episodes	20		26		17		21		22		21		22		12		161		
	E-B 1		E-B 3		Bank St. 2		Bank St. 1		Bush. 1		Bush. 2		Open 1		Open 2				
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	YES	NO	TOTAL
Content	0	4	1	1	0	0	0	3	-	-	1	0	1	1	-	-	3	9	12
Content/ Op.	8	10	15	2	5	3	4	1	-	2	2	3	6	2	3	0	43	23	66
Content/ B.T.	-	-	-	-	-	-	-	-	-	-	-	-	1	0	-	-	1	0	1
Oper.	5	1	10	3	2	4	2	1	-	-	8	2	3	2	5	1	35	14	49
Oper./ B.T.	-	-	-	1	2	0	-	-	-	-	-	-	-	-	-	-	2	1	3
B.T.	1	1	-	-	-	-	-	1	1	1	1	0	-	-	1	0	4	3	1
C/O/B.T.	1	1	3	0	1	0	1	0	1	1	0	1	1	0	-	-	8	3	11
No Shift	12	-	12	-	3	-	2	0	1	-	7	-	12	-	5	0	54	0	54

Across all programs it is rare for teachers to shift attention from one child or group of children to another within a main episode. Variety within episodes is achieved most frequently through changes in content and in the operations employed in dealing with that content. Both Engelmann-Becker teachers used these shifts significantly more often than did the teachers in the other three programs. It is in the nature of the small group recitation organization in the Engelmann-Becker classsrooms that these shifts function to maintain the game quality of the tasks and sustain the children's interest. (See Table 5.7 for further episode data.)

The data indicate some relationship between role behaviors and number of children in the group, with which the teacher is involved, Bank Street and Bushell teachers tending to work with the largest group size when in a high authority task related role, and Engelmann-Becker and open classroom teachers working with groups of from 6 to 12 more frequently when they are in a dominative task-role. This, again, may have some relationship to the similar ways in which open classroom and Engelmann-Becker teachers organize learning experiences for children.

When the teachers are enacting medium authority task-related roles, the picture changes considerably, with Bank Street teachers working with one child, Bushell with small groups of two to five pupils, both of them largely in tutorial roles. Similarly, open classroom teachers work with one child and small groups (2-5 children) most of the time that they are in medium authority task roles, and Engelmann-Becker with small groups over 50% of the time.

The most frequent use of a one child tutorial is in the Bank Street program, with 2/3 of all instances occurring there, and 1/3 of all instances in open classrooms. None were observed in Bushell or Engelmann-Becker.

Table 5.7: Section Function - Changes between Episodes

Program	Classroom	# of main episode changes	# of section function changes	Percentage of section function changes
Bushell	1	21	21	100
	2	22	15	68
E-B	1	19	17	89
	3	25	21	84
Bank St.	1	22	13	59
	2	17	15	85
Open	1	23	19	88
	2	11	9	82

Average Length of Main Episodes

Program	Classroom	# of main episodes	Total # of min.	Average length (min.)	Average length (excluding transitions)
Bushell	1	22	182	8.23	10.83
	2	21	226	10.71	11.87
E-B	1	20	310	15.45	23.08
	3	26	277	10.62	13.33
Bank St.	1	21	253	12.05	13.81
	2	17	223	13.06	18.00
Open	1	22	307	13.91	17.60
	2	12	170	14.08	16.88

The only noticeable and consistent differences among programs is found in the shorter length of main episodes in the Bushell program.

By far the most frequent instances of small group clusters (2-5) were in Bushell classrooms, and secondly, Engelmann-Becker.

While at first one might have expected low authority task-related roles to occur with small groups, such is not the case except in Bushell when 39.9% of low authority task role behavior occurs with small groups (2-5 children).

In all programs, the largest percentages of low authority task roles are with groups of 6-12 children or over 12 children (usually whole class). This is explainable by the fact that independent work usually frees the teacher to behave in less controlling ways and in several classrooms, low task role behavior is associated with large class, independent work periods. Organizational roles occur most often when children are in large group or fluid clusters, and this obtains whether teachers are exercising high, medium or low control.

Similarly, low and high social control roles occur most frequently with large groups of children.

The association between authority and activity is a complex one which needs further analysis. Some tentative statements, however, can be made at this point.

Teachers tend to spend more of their time in high and medium authority roles than in less dominative, passive roles. When they are engaged in first priority knowledge concerns, Engelmann-Becker and open classroom teachers are enacting high task-related roles 42 and 30 percent of that time. Bank Street and Bushell teachers differ from one another within programs and from the other two programs in the following ways. While taken together Bank Street teachers exercise high and medium authority roles 22% and 26% of the time, the Bank Street (1) teacher accounts for the larger part of the medium and Bank Street (2) for the higher authority in greater proportion.

It is interesting that the Bank Street (1) teacher exercises role and activity patterns similar to Bushell teachers in first priority knowledge concerns. Both are largely in medium authority task roles. Closer examination of the data reveals that in these three classrooms, a large part of first priority concerns are handled in tutorials or very small groups.

As one moves away from first priority concerns, lower authority task-related roles become more evident in all classrooms so that in knowledge unspecified we find practically no high authority task roles being evolved.

Partly in the way we coded relative openness of behavior, and partly because conceptual closure on adaptiveness in behavior has not occurred, the results regarding the relationship of teacher role behavior with orientation to others are inclusive.

While it was expected that coding of episodes as sustained, permeated, arrested and interrupted would tell us something about the relative openness of different teacher behaviors, the actual occurrence of permeated main episodes was so small and accounted for so small a portion of any teacher's day (see Table 5.8) that it is difficult to reach any conclusions from this part of the data. It might be fruitful to analyze more carefully the Bushell (2) and Bank Street (2) teachers, who spend 10.6 and 9.4 percent of their day in permeated episodes and make comparisons of their behavior with relevant variables.

In all classrooms, however, most episodes are sustained with little interference, and pupil intrusion is slight. During those episodes where the teachers are handling several events as a primary concern (such as transitions), the episodes have been regarded as primarily sustained because

Table 5.8: Main Episode Minutes Permeated

		Permeated	Total	% Permeated	Total Altern.	% of Alternate Permeated
Bushell	1	2	182	1.09	5	40.00
	2	24	226	10.62	34	70.69
E-B	1	11	310	3.55	17	67.06
	3	15	277	5.41	26	57.69
Bank	1	18	253	7.11	46	39.13
Street	2	21	223	9.41	41	51.22
Open	1	23	307	7.49	95	24.21
	2	6	170	3.53	36	16.67

the teachers intentions are being realized with little alternative demands.

Investigation of transitions for more information about adaptiveness in behavior would, however, be useful.

It is clear to us, that when teachers are engaged in knowledge concerns they are usually locked into sustained and strongly goal directed episodes and, considering the length of alternative episodes (which average approximately one and a half minutes), teachers are only momentarily diverted from their intentions. (See Table 5.9 following this page.)

Open classroom teachers spend considerably more of their time (31% and 21%) attending to alternative episodes, but it must be pointed out that in neither classroom was the teacher aided by a trained assistant.

Although we have been unable to get any clear picture about teacher adaptiveness to pupils by the analysis of episode quality, we are hopeful that a combination of other indices of behavior will make this behavioral attribute more apparent. Teacher initiation of interactions and the reinforcements which occur in different classrooms seem to be good indicators of the way in which teachers adapt themselves to pupils' positions, one, by allowing children to initiate communication and the other by giving children perspective on their social and academic performance.

Table 5.9: Characteristics of Alternative Episodes.

Classroom	# of alternate episodes	Min./day	Min./Alt. Epis.	Min./Epis.	Col. 3/Col. 2*	Length (min.)		
						1-4	5-9	10-14
Bronx 1	5	182	5	1.00	.03	0	0	0
Bronx 2	25	226	34	1.36	.15	5	0	1
Bank St. 1	29	253	46	1.59	.18	4	2	0
Bank St. 2	21	223	41	1.95	.18	6	0	1
Open 1	73	307	95	1.30	.31	11	2	0
Open 2	32	170	36	1.13	.21	4	0	1
E - B 1	9	310	17	1.89	.05	5	0	0
E - B 3	17	277	26	1.53	.09	9	0	0

*Percentage of minutes in a day, all or part of which are spent in alternative episodes.

As has been the case with so many of our findings, teacher control is so well diffused in all classrooms, that initiations of interactions are largely dominated by the teacher. Variations, however, strongly exist among the eight teachers we have analyzed, and relationships of teacher initiation of interactions and the settings in the classroom do exist. In Bank Street and Bushell classrooms, over 75% of all interactions in first and second priority knowledge concerns are initiated by the teachers. Bushell teachers initiate the highest percentage of interactions, and this holds across all concerns. In the procedural concerns of Bank Street classrooms, 23% of all interactions were instigated directly by others, and 12% were instigated indirectly by others, usually pupils. These are considerably less instigated initiations in Busnell classrooms in any setting. There is more agreement between the two Bushell teachers in this respect than between the two Bank Street teachers, where one teacher (Bank Street 1) accounts for the higher proportion of teacher initiations than the other. The greater similarity between the two Bushell teachers is probably due to the more restricted ways in which the teachers in this program can operate, where the greater latitude in choice in Bank Street classrooms of how instruction is to take place, may show greater variation in individual teacher behavior.

In Engelmann-Becker classrooms initiation of interactions by teachers is considerably less than the above two programs, and even less than in open classrooms.

In knowledge first priority concerns of both open and Engelmann-Becker classrooms, (and second priority in Engelmann-Becker) teacher domination of initiation is very high (as in the above programs), but the differences are apparent in unspecified knowledge concerns and social and procedural concerns for both Open and Engelmann-Becker teachers.

Engelmann-Becker teachers 1 and 3 differ from one another to the extent that Engelmann-Becker teacher 3 has the least number of teacher initiated interactions among all teachers analyzed.

As with other indications of teacher domination, when the classrooms move away from knowledge first priority concerns there is a tendency to have increased pupil initiation, but teacher domination is still relatively high in this respect, and continues to be so even in social and procedural concerns.

Following is a brief examination of the use of reinforcement in the four Follow Through programs under study. Table 5.10 contains data on academic reinforcement as discussed in the following paragraphs.

We see that our Bushell, Engelmann-Becker, and Open classroom teachers use some form of academic reinforcement in approximately half of those situations in which opportunities to do so exist. Bank Street teachers reinforce academic performance in fewer than one third of these situations. There is nothing in the Bank Street philosophy to account for this finding, nor is there any explanation for it in the data on other parameters examined to date. Further study may offer reasons for this result. As would be expected about 85% of all academic reinforcement takes place during Task Related teacher role enactment. With Task Related roles there is an absolute inconsistency across all four programs with regard to the percentages of overall reinforcement occurring in high, medium, or low task role segments. This inconsistency is maintained when each type of reinforcement is examined across these three task categories.

When the various types of reinforcement which occur are investigated individually, differences are more clearly delineated. Open classroom teachers use significantly less perfunctory positive reinforcement than do the

Table 5.10
Academic Reinforcement by Program

Type of Reinforcement	Bank	B	E-B	Open
Accept Perfunct.	63.1%	73.1%	65.0%	40.0%
Accept Adaptive	12.3%	1.6%	5.6%	16.6%
Reject Non-Adapt.	5.2%	4.3%	5.6%	10.4%
Reject Adaptive	18.4%	12.2%	10.6%	14.4%
Reject Adapt; Accept	8.8%	7.9%	7.5%	11.3%
Reject Perfunct. Accept	0.0%	0.0%	5.7%	2.0%
Sarcasm	.2%	.9%	0.0%	5.3%
Total Raw	124	253	391	247
Total opportunities	405	453	820	451
No Reinforce.	281	200	429	204

teachers in other programs and a correspondingly greater amount of adaptive reinforcement. Both the open classroom and the Bank Street teachers tend to adapt their praise to the specific task or project in which the child is involved and encourage further work in line with the child's current interest. It is interesting to note that despite their adaptive acceptance, our open classroom teachers show the highest percentage of perfunctory rejections. They are inclined, whether by philosophy or the constraints placed upon their time by the low teacher/pupil ratio, to encourage children simply to "try again" when they have made an error, rather than working the problem through with the child when approached. Invariably, the teacher will later assist the erring child during that time which she has allocated for her "helping" role.

The breakdown of "Social reinforcement" (Table 5.11) into its constituent categories is an attempt to represent as accurately as possible methods of verbal and non-verbal control which teachers employ both to teach and enforce social classroom norms. One of the contexts in which we are investigating this control is in its relation to the concurrent role enacted by the teacher.

Table 5.11: Distribution of Social Reinforcement by Teacher Role

Teacher Role	Bank Street	Bushell	Engelmann-Becker	Open
Organizational	58%	34%	28%	21%
Task Related	37%	59.5%	60%	66%
Social Control	4%	6.5%	12%	13%

In all programs except Bank Street considerably more of the social reinforcing takes place when the teacher is in an organizing capacity than in a task related or social control role. In Bank Street the ratio of reinforcements in these latter roles to that in an organizing role is reversed. This occurs despite the fact that the Bank Street teacher does not seem to spend a greater percentage of her day as a classroom organizer than do the other teachers. Our data show that Bushell and Open classroom teachers used some kind of social reinforcement in over 90% of the interactions in which it was appropriate, while Bank Street and Engelmann-Becker teachers reinforced approximately 70% of the time. There is not, at this time, any apparent reason which accounts for the high percentage in the open classroom other than the fact that the teachers seize most available opportunities to reinforce. In Bushell classrooms, however, there are fewer instances of pupil initiated social and procedural interactions to which the teacher may or may not respond with reinforcement while there are many social reinforcements initiated by the teacher without any prior solicitation on the part of a child. This is most noticeable in the fact that 78% of all reinforcement used in Bushell classrooms was in the "commend" category. This cell is comprised primarily of statements such as "I like the way you raise your hand" and "How nice to see you working quietly", etc. These commendations were almost exclusively initiated by the teacher in a systematic and regular attempt to influence the course of future behavior of both the individual reinforced and of those in close proximity rather to reward a specific, presently occurring behavior. In this sense it might be regarded as "behavior shaping" but due to its more stereotyped and predictable quality we chose to categorize it as "commends."

In contrast to the preponderance of "commend" in the Bushell classrooms with only 21% of the reinforcements being of the "behavior control" type, the pattern is reversed in the remaining three programs. Here,we find between 65 and 71% "behavior control" reinforcement as opposed to between 6 and 13% commendations. Table 5.12 shows that approximately 75% of all behavior control used as norm reinforcement is exercised as an immediate, perfunctory response to a misdemeanor and there does not seem to be any significant difference among programs in their adaptive use of control.

Table 5.12
Distribution of Social Reinforcement by Program

Type of Reinforcement	Bank	B	E-B	Open
Commend	13%	78%	11%	6%
Behave. Control imm.perf.	49%	20%	51%	56%
Behav-Control Adapt.	14%	1.0%	20%	14%
Behav-Control Excessive	2%	0.0%	.8%	1%
Behav. Shaping	19%	1.0%	15%	15%
Sarcasm	1%	0.0%	0.0%	4%
Ignores	2%	0.0%	2.2%	4%
Total Raw	112	154	126	110
Total Opportunities	172	166	176	115
No Reinforcement	60	12	50	5

The use of behavior shaping, in its looser and more extemporaneous sense is negligible in the Bushell classrooms and constitutes between 15 and 20% of the reinforcement in the remaining three programs.

The analysis of teacher behavior stream observation records has pointed to several consistent patterns among all of the teachers as well as differences which obtain as teachers operate in differently structure classrooms. The persistence of teacher domination in first priority concerns may have a logical relationship to the kinds of skills learning required of pupils but may, as well, be an indication of what Paul Gump refers to as a "drift toward standard practice," or of some strongly cultural effect. The demands upon teachers to "teach" can be appreciated by the large numbers of teacher initiations of interactions, and by the direct control over information which teachers have. Changes in the arrangement of children into differently sized clusters have had little effect upon teacher behavior when viewed from an authority viewpoint.

Materials, functions of episodes, openness of behavior and adaptiveness to child needs have all been considered in the above analysis and where evidence has indicated differences among teachers they have been reported. It is hoped that further analysis will yield more insights into the classroom setting effects upon behavior, and the relationship of teacher behavior to expectations for pupil learning.

Appendix 5-A

Reliability Observer 1 = Observer 2

Category	Total Entries	Percent Agreement
Episode quality	97	88.63
Episode initiation	100	89.00
Who initiates	100	89.00
Episode function	-	93.00
Episode termination	100	91.00
Who terminates	100	91.00
Alternative concern	100	91.00
Alternative quality	100	91.00
Alternative initiation	100	90.00
Who initiates	100	90.00
Alternative termination	100	91.00
Who terminates	100	91.00
Content shift	99	95.94
Operation shift	99	95.94
Behavior target shift	99	94.94
Function	99	85.81
Teacher pacing	90	82.19
Group cluster	92	85.81
Material homogeneity	99	88.88
Material mode	99	90.88
Material user	99	81.81
Teacher attend	90	87.75
Teacher address	-	100.00
Interaction with whom	67	94.30
Interaction initiation	67	91.05
K/S/P	-	92.00
Reinforcement academic	25	84.00
Reinforcement social	67	89.55
Role	198	92.00

Appendix 5-B

Notes on Definitions for Coding

Many of the coding categories of BESIS - Teachers are self-explanatory and require little, if any, explication. Others are delineated in the CCEP Fourth Progress Report (p. 106-134).

Following are definitions and/or examples extracted from behavior stream records of those coding categories which do not fall into either of the types mentioned above.

Episode Concern

(17) Preparing for the day - was used to categorize any segment of the day during which the teacher, either alone or with the class, was involved in preparation of a general nature. When lengthy preparation for a specific social or academic session occurred it was coded as a preparatory section of the session episode.

(18) Beginning day ritual - describes that time devoted to ritualized and predictable sessions at the beginning of the class day such as the Salute to the Flag.

(19) Material preparation - is a less global option than "Preparing for the day" used primarily to characterize those times when the teacher is exclusively involved in preparing and/or organizing materials.

Initiation (Episode, Alternate Episode, Interaction)

For the analysis of teacher behavior, induced and uninduced social initiation have adopted a slightly different usage than that described in CCEP's Fourth Progress Report (p. 129)

> ...An induced change was brought about by the investigator in order to attract the /teacher's/attention, i.e., it was a technique for the indirect control of behavior. An uninduced change was one which occurred unintentionally...

In the course of a teacher's day there are many interactions which are of a helping or correcting nature, which she initiates as a result of observing a child's behavior or academic performance. An example of this is the teacher's pointing out to a child his error on an arithmetic problem as she roams the room or sits in a small group overseeing the children's work. Although it can be assumed that in most cases the child does not deliberately make the error to attract the teacher's attention, this was considered an "indirect, social induced" initiation due to the fact that the child's expectation is that the teacher will perform this "vigilant" function and that both his academic and social behavior thoughout the day is subject to the teacher's observation and comment.

Episode initiation was rarely anything but "spontaneous." As a result the above adaptation refers almost exclusively to interaction initiation.

Episode Function

(4) Maintaining - this option has been added to most precisely represent the function of many transitions as well as eating and "clean-up" episodes in which the episode serves primarily to hold the setting together. This option is found also in the section function category.

Shifts

The section shift categories require some clarification. In all three types, Content, Operation, and Behavior Target, the option N/A is used when an episode begins following an absence from the classroom.

Although the concern usually remains the same throughout an episode, the content within the concern may vary. A content shift is coded as occurring, for example, when in math the "content" changes from "counting backwards from 19" to doing subtraction problems or in reading when changing from reading a story to playing "Consonant Lotto."

The operation mode changes within or between episodes when the interaction mode or response pattern between teacher and child(ren) shifts. This occurs, for example, when recitation changes to pencil and paper problem solving or individual to group recitation.

A behavior target shift represents a radical change of personnel between successive sections. When only one or two pupils enter or leave an otherwise constant group cluster the behavior target category does not reflect a change.

Group Cluster

(5) Fluid - is used to describe group cluster when there is a gradual change of pupils between sections or episodes. During this time the number of children within the teacher's immediate sphere of influence is in a state of continuous flux.

Material Used By

(5) Both/teacher controlled - used when the material mode is symbolic and the information is contained, for example, in a notebook or on the blackboard and is manipulated by only the teacher but acted upon by the children in the group cluster.

Teacher Attend; Teacher Address

(4), (5), (6) Other teacher options - included to descrive those sections during which a teacher other than the head teacher is the focus of pupil attention and interaction, and the head teacher remains in the episode (usually as an observer or helper).

Reinforcement/Academic

(1) None - passive acceptance of pupil response or performance, i.e.,

neither rejection nor elaborated acceptance.

(2) Accept perfunctory - active approval of a perfunctory nature, e.g., "good," "nice work," "yes," a nod of the head, or a teacher repetition of the child's response.

(3) Accept adaptive - acceptance of a response in which the teacher elaborates upon the answer given by the child or encourages the child to pursue further an interest expressed by the child or discovered via probing by the teacher.

Example 1

...He begins to read. She points to something in his book and says, "that word" and the word is "splash." He reads "splash" and she repeats it after him. She takes her hands and makes a motion as if she were splashing water on him. He reads "splash" again and she does it again...flicking her hands from wrists to fingertips...toward him....

Example 2

In a formal sharing session a child mentions that she has a new pirate puppet. The teacher ten encourages discussion of pirate and pirate lore as the children become excited and express interest in this topic.

(4) Reject, non-adaptive - a perfunctory rejection in which an immediate corrected response is neither awaited nor requested. In recitation the teacher often turns immediately to another child. In written work this option is coded when the teacher perfunctorily rejects a written answer and leaves the child before the correction is made or does not comment on the corrected response.

(5) Reject, adaptive - a rejection accompanied by reasons and/or assistance toward acceptance.

Example 1

...Then she moves to a child who is asking her a question. It is a child who is copying sentences. She has him erase and start again and shows him how to make the letters look like the sentence....

Example 2

...One child she calls on to read "sewing beads" is having trouble with the second word "beads." She makes a signal like a Cheerio with her thumb and forefinger. He doesn't get that. She covers the "ads" then the "be" and he still doesn't know it. Covers it again. Then calls on another girl....

(6) Reject, adaptive/accept - a rejection accompanied by assistance and subsequent active acceptance.

Example 1

...The boy reads a word incorrectly. The teacher then illustrates with a movement of her hand as she says, "Sometimes when I do this to your paper." She takes a pencil and puts a check on his paper. He says the word correctly and she says, "Good."....

Example 2

A child is coloring pictures of objects according to a color code which prescribes certain colors to go with given starting letters.

...She points to a picture and asks the boy what it is. He says a fiddle. Teacher says, "Well, sometimes we call it a violin." The boy says, "What?" She says, "A violin." So then he says, "Oh, I color it green, a 'v'." She says, "Yes."....

(7) Reject, perfunctory/accept - non-adaptive rejection followed by a correct response by the same behavior target which is then accepted either passively or perfunctorily.

Example

...They are all doing the same problems. She is having each of them read it. One of them reads it incorrectly and she says, "No, read it again." He reads it correctly and she says, "Okay."

(8) Sarcasm

Example

...The teacher is holding up a picture that looks like a state trooper or a soldier. A forest ranger! One little boy says, "A farmer." And the teacher says to him rather disdainfully, "You think that looks like a farmer?"

Reinforcement Social

None - Same as for academic.

Commends - Teacher praises social behavior either perfunctorily or with some elaboration.

Example 1

...John tells the teacher that he helped Paul by telling him what to do. The teacher says, "That's very good. You're a very good teacher, did you know that?" The little boy smiles and goes away....

Example 2

...The children are buzzing among themselves. The teacher says, "Shh." One child is quiet so the teacher leans over and gives her hand a little shake....

Example 3

...The teacher is counting to ten as a signal for the children to quiet down...She's now up to ten. Most children are in their seats... "That was very good," the teacher says.

Behavior control/immediately perfunctory - a swift, efficient disciplinary response to a misdemeanor or inappropriate social behavior. Teacher offers no rationale.

Example 1

...Again there's a little disruptive activity at a table...The head teacher walks over to the table and with her thumb in the gesture of an umpire, ejects a student from the area...The teacher places her hands on his shoulders, marches him to the wall, and tells him to remain there until the big hand reaches some particular number....

Example 2

...Teacher has asked the children a few more questions...A child just got out of his chair holding his fingers up to the teacher. The teacher snapped her fingers and waved her hand in a downward motion indicating to the child to sit and tells him to put his fingers down.

Example 3

...Two children are talking louding and disruptively. The teacher simply looks at them sternly and mentions their names indicating that she wants them to stop....

Behavior control adaptive - a reprimand accompanied by rationale or constructive suggestion.

Example 1

...Teacher says to a child, "John, I don't allow you to fool around with someone when you have all that mess to clean up." She's reprimanding him, telling him that the other children are ready to begin and will have to wait for their next activity.

Example 2

...The teacher has begun distributing fruit for breakfast. She now moves over toward the children who are wrestling on the floor. "All right, boys," she says...Asks them to put the toys away. "I've asked you to come for breakfast, I told you that. You didn't listen."

Example 3

...The teacher turns to a child who has been fooling around during a lesson and tells him that if he continues he won't know the answer when it's his turn.

Behavior control excessive - involves the use of rationale or simple punitive measures in excess of those necessary to state or reinforce a transgressed social norm.

Example

Discovering that one child is doing another child's worksheet, the teacher berates the child and makes an example of the incident before the whole class during a reprimand which continues for four minutes.

Behavior shaping - a direct or indirect statement of request which the teacher makes to influence the future course of children's behavior. It implies classroom norms and is not precipitated by some immediately prior child behavior.

Example 1

...The teacher has divided the children into different task groups. She has a group for story reading..."Now the rest of you who aren't with this group," she looks around the room, "please don't disturb us."

Example 2

...The teacher says to the class when the room has become very quiet, "This is really nice. When it's like this I don't have to yell over everybody."

BESIS - Teachers

Identification:

Program:
1 Bank Street
2 Bushell
3 Engelmann-Becker
4 Open

Classroom:
1 Plattsburgh
2 Tuskegee
3 Wilmington
4 Bronx
5 Philadelphia
6 Trenton
7 Dayton
8 East St. Louis
9 Smithville
10 P.S. 42
11 P.S. 152
12

Episode time
000 to 999

Episode #
00 to 99

Episode Concern
1 Math
2 Reading
3 Spelling
4 Language
5 Social Studies
6 Science
7 Art
8 Music
9 Cooking
10 Independent work
11 Work review
12 Formal sharing
13 Play
14 Org. games, exercises
15 Eating
16 Social interaction
17 Preparing for the day
18 Beginning day ritual
19 Material preparation
20 Outside business
21 Transition
22 Absent
23 Incidental procedure

Episode quality:
0 N/A
1 Sustained
2 Permeated
3 Arrested
4 Interrupted

Episode initiation:
0 N/A
1 Spontaneous
2 Instigated, direct social
3 Instigated, indirect, object induced
4 Instigated, indirect, object uninduced
5 Instigated, indirect, social induced
6 Instigated, indirect, social uninduced

Who initiates episode:
0 N/A
1 Subject
2 Child
3 Group with teacher
4 Group without teacher
5 Other teacher
6 Object
7 Observer
8 Outsider
9 Cannot judge

Episode Function:
0 N/A
1 Integrative
2 Preparatory
3 Perspective
4 Maintaining
5 Contingent
6 Additive
7 Repetitive
8 Directive
9 Algorithmic

Episode termination:
0 N/A
1 Spontaneous
2 Instigated, direct social
3 Instigated, indirect, object induced
4 Instigated, indirect, object uninduced
5 Instigated, indirect, social induced
6 Instigated, indirect, social uninduced
7 Pressured
9 Cannot judge

Who terminates episode:
- 0 N/A
- 1 Subject
- 2 Child
- 3 Group with teacher
- 4 Group without teacher
- 5 Other teacher
- 6 Object
- 7 Observer
- 8 Outsider
- 9 Cannot judge

Alternate number:
00 to 99

Alternate concern:
Same as episode concern

Alternative quality:
- 0 N/A
- 1 Sustained
- 2 Permeated
- 3 Arrested
- 4 Interrupted

Alternative initiation: Same as Episode

Who initiates alternative: Same as Episode

Alternative termination: Same as Episode

Who terminates alternative: Same as Episode, but 9 is mutual

Content Shift:
- 0 No
- 1 Yes
- 2 N/A (previous episode uncoded, e.g., lunch)

Operation Shift:
- 0 No
- 1 Yes
- 2 N/A

Behavior target shift:
- 0 No
- 1 Yes
- 2 N/A

Function:
- 0 N/A
- 1 Integrative
- 2 Preparatory
- 3 Perspective
- 4 Maintaining
- 5 Contingent
- 6 Additive
- 7 Repetitive
- 8 Directive
- 9 Algorithmic

Teacher pacing:
0 N/A
1 High
2 Medium
3 Low

Group Cluster:
0 None
1 1 child
2 2-5 children
3 6-12 children
4 More than 12 children
5 Fluid

Material Homogeneity
0 None
1 Same
2 Different
9 Don't know

Material mode:
0 N/A
1 Looking, listening
2 Symbolic
3 Manipulative
4 Motor
5 Fantasy
6 Varied
7 Manip/Symbolic

Material used by:
0 N/A
1 Child
2 Group
3 Teacher
4 Both
5 Both/teacher controlled

Teacher attend:
1 High
2 Medium
3 Low
4 High, other teacher
5 Medium, other teacher
6 Low, other teacher
9 Dont' know

Teacher address:
1 High
2 Medium
3 Low
4 High, other teacher
5 Medium, other teacher
6 Low, other teacher
9 Don't know

Interaction with whom:
0 N/A
1 Child
2 Group
3 Other teacher
4 Outsider
5 Observer
6 Part of group
7 No response
8 Continued
9 Don't know

# of interactions in minute: total number

Interaction initiation
0 N/A
1 Spontaneous
2 Instigated, direct social
3 Instigated, indirect, object induced
4 Instigated, indirect, object uninduced
5 Instigated, indirect, social induced
6 Instigated, indirect, social uninduced
7 Pressured
8 No response
9 Cannot judge

Quality of initiations over six interactions:
1 Spontaneous
2 Instigated
3 Mixed

K/S/P
0 N/A
1 Knowledge - content
2 Knowledge - norms for learning
3 Social - personal
4 Social - norms for conduct
5 Procedural
9 Don't know

Quality of K/S/P of interactions over six:
1 - 5 same as above
6 Mixed
9 Don't know

Reinforcement/academic:
0 N/A
1 None
2 Accept, perfunctory
3 Accept, adaptive
4 Reject, non-adaptive
5 Reject, adaptive, [illegible]
6 Reject, adaptive, accept
7 Reject, perfunctory/accept
8 Sarcasm
9 Don't know

Quality of interactions over six:
0 N/A
1 None
2 Accept
3 Reject
4 Mixed
9 Don't know

Reinforcement/social
0 N/A
1 None
2 Commends
3 Behavior control immediate perfunctory
4 Behavior control adaptive
5 Behavior control excessive
6 Behavior shaping
7 Sarcasm
8 Ignores

Quality of interactions over six:
0 N/A
1 None
2 Commends
3 Behavior control
4 Behavior shaping
5 Mixed
9 Don't know

Role:
1 Task director
2 Supervisor
3 Expeditor
4 Action director
5 Discussion leader
6 Organizer/planner
7 Task assigner
8 Recitation leader
9 Organizer/materials preparation
10 Authority presence
11 Resource presence
12 Watcher/helper
13 Behavior control
14 Task regulator
15 Instructor
16 Information resource
17 Material resource
18 Authority resource
19 Reinforcement resource
20 Monitor
21 Facilitator
22 Checker
23 Administrator
24 Tutor
25 Demonstrator
26 Participator
27 Tester
28 Observer

Glances at Observers:
0 No
1 Yes

Role Behaviors:*

1 Task director
2 Supervisor
5 Discussion leader
6 Organizer/Planner
8 Recitation leader
9 Organizer/Materials Prep.
10 Authority presence
11 Resource presence
12 Watcher/helper
14 Task regulator
15 Instructor
21 Facilitator
22 Checker
24 Tutor
25 Demonstrator
26 Participator
27 Tester
28 Observer

Actions:*

3 Expeditor
4 Action director
7 Task assigner
13 Behavior control
16 Information resource
17 Material resource
18 Authority resource
19 Reinforcement resource
20 Monitor
23 Administrator

---

* A discussion with Paul Gump led us to reorganize our categories into two variables, role behaviors which persisted over time, and actions which occur briefly within larger role behaviors.

Appendix 5-C

Collapsed Concerns

I Knowledge, first priority

1 math
2 reading
3 spelling

II Knowledge, second priority

1 language
2 social studies
3 science
4 art
5 music
6 cooking

III Knowledge, unspecified

1 independent work
2 work review

IV Social

1 formal sharing
2 play
3 organized games, exercises
4 eating
5 social interaction

V Procedural

1 preparing for the day
2 beginning day ritual
3 material preparation
4 outside business
5 transition
6 incidental procedure

Appendix 5-D

Role Behaviors
(Categorized by Task, Organization and Social Control.)

Task Related Roles

Task director
Supervisor
Discussion leader
Recitation leader
Watcher/Helper
Task regulator
Instructor
Facilitator
Checker
Tutor
Demonstrator
Participator
Tester
Observer

Organizational Roles

Organizer/Planner
Organizer/ Materials preparation

Social Control Roles

Authority presence
Resource presence

Appendix 5-E

Actions

(Categorized by Task, Organization and Social Control)

Task Related Actions

- Task assigner
- Expeditor
- Information resource

Organizational Actions

- Action director
- Administrator
- Material Resource

Social Control Actions

- Authority resource
- Behavior control
- Reinforcement resource
- Monitor

Appendix 5-F

Collapsed Role and Actions Behaviors into High, Medium and Low Authority

Task Related Roles and Actions

High - Task director
- Task assigner
- Recitation leader
- Instructor
- Demonstrator
- Testor

Medium - Supervisor
- Task regulator
- Checker
- Tutor

Low - Expeditor
- Discussion leader
- Watcher/helper
- Information resource
- Facilitator
- Participator
- Observer

Organizational Roles and Actions

High - Action director
- Administrator

Medium - Organizer/Planner

Low - Organizer/Materials prep.
- Material resource
- Observer

Social Roles and Actions

High - Authority presence
- Authority resource
- Behavior control

Low - Resource presence
- Reinforcement resource
- Monitor
- Observer

Chapter 6: An Analysis of the CCEP 1971 Social Context Data.

Walter Furman
Peter Shaw

Introduction and Rationale

> The intention of the (CCEP) survey study was to investigate the overall social system surrounding each observed classroom, especially as it reflected the systematic implementation of a sponsor's model, and to articulate with the in-class data collection. At the inception of our project, it was hypothesized that the school was a socializing institution, and that the whole system of social relationships surrounding the classroom indirectly affected the experience and learning of the child. (Fourth Progress Report, p. 196.)

The above quote neatly summarizes the rationale and intent of the social context study component of CCEP. In effect, we wanted to look at the parents, teachers, aides, and administrators in a community in order to ask two types of questions. First, we wanted to know what each sponsor's organizational model looked like at the local level, that is, what systematic patterns of interactions and attitudes did each model foster. And secondly, we wanted to consider the questions of how the social context of a Follow Through project affected the in-class experience of its students.

We have stated previously, (Fourth Progress Report, p. 197) and must reiterate now, that the main charge of the CCEP social context study was to develop conceptualizations and hypotheses relevant to the questions posed above. We have collected evidence about many intriguing aspects of the social systems of the different Follow Through models, but due to the limitations of study design and small sample size, we make no claims here about the generalizability of our findings. We believe that the design we used was appropriate for the pilot study we conducted. Our sample of projects was chosen in conjunction with the observational component of CCEP (as explained below), and so emphasized broadly divergent types of educational environments. Consequently, we were sensitized in these investigations to a broad range of social contexts, and we feel that as a result our mission as a pilot study has been more adequately fulfilled.

Design, Instrumentation, and Data Collection

Given the overlapping interests of the social context and classroom investigators, a wide ranging social context study was designed to complement the other efforts of the CCEP. The models were chosen by the CCEP for purposes of comparing more and less prescriptive classroom environments. The classrooms to be observed were chosen on the basis of their being recommended as exemplars of the sponsor's model. The social context study chose its sample in conjunction with the classroom observational team, and consequently researched those Follow Through projects in which the exemplary classrooms were located. And though the models were chosen for the range of prescriptiveness of their classroom envionments, they also varied on the prescriptiveness of their organizations out side the classroom.

After an initial period of fieldwork and unstructured observation and interviewing in each model, survey and interview instruments were designed. Three questionnaires (for parents, teachers, and aides) were drafted, pretested for clarity and comprehensibility, and administered in their final form. The instruments for teachers and aides contained many sets of questions on a variety of subjects. First, there were simple measures of organizational behavior, such as supervision and evaluation. Other such measures included questions on recruitment, training and socialization to the job, and communication patterns. Lastly, teachers and aides were asked questions about their norms for educational goals and procedures, (1) so that we could have an idea of how program goals are interpreted on the grass roots level, and (2) so we could discover the relationships between program organization and educationally relevant attitudes. The conceptualization of the attitude domains used in the survey was developed parallel to CCEP's conceptualization of the dimensions of the learning environment. Therefore, our normative items covered the areas of (1) the general value of students autonomy versus teacher direction[1], and (2) the specific areas of teachers' norms for the knowledge and social orders of classroom environments.

The parents questionnaire was also developed in parallel to CCEP's conceptualization of learning environments, and addresses many of the same issues. Here, a more open ended format was utilized, and the intention was simply to find out whether in the future one could profitably investigate the interactions of the program and the home and thereby enrich our knowledge of the effects of these programs on the experience of the child. Three important areas that were addressed in the parents interview were: (1) the parents knowledge of and involvement with the program; (2) the parent's values, and his treatment of his child; and (3) a variety of personal and community background characteristics.

The actual social context study, as it was finally realized, surveyed teachers and aides in all of the Follow Through classrooms of the schools in which the exemplar classrooms observed were located, and interviewed many of the parents of the children in the observed classroom. In comparison schools, all of the staff of the kindergarten through third grades were our in-school sample, and of course the parent sample was again the parents of the children in the observed classroom. In some locations the staff sample also included teachers and aides located in schools other than that which housed the exemplar classroom, but in these cases the administration of Follow Through was centralized, and for purposes of our pilot study, we consider all of the classrooms in one community as one Follow Through Project. Finally, in all locations, an attempt was made to interview the key advisory and supervisory personnel. Table 1 is a comprehensive summary of the data collected in our study.

Table 1: Summary of Data Collected

Sponsor	Location	Teachers*	Aides*	Parent Interviews	Staff Interviews
E - B	Smithville, Tenn.	5	11	20	3
E - B	E. St. Louis, Ill.	7	15	8	4
E - B	Dayton, Ohio	16	17	12	7
Bushell	Trenton, N.J.	18	22	14	3
Bushell	Phila., Pa.	8	14	18	1
Bushell	Bronx, N.Y., C.S. 6	1**	4**	9	2
Bank St.	Rochester, N.Y.	13	6	-	7
Bank St.	Plattsburgh, N.Y.	6	6	12	2
Bank St.	Wilmington, Del.	8	9	11	3
Bank St.	Tuskegee, Ala.	12	18	13	3
Comparison	E. Orange, N.J.***	8	4	-	2
Comparison	B'klyn, N.Y. P.S. 152***	7	2	8	1
Comparison	Man., N.Y., P.S. 42***	7	-	13	1
	Totals:	116	128	138	

* Entries in these columns are the total number of usable returned questionnaires

** The data from this school is incomplete. Another nearby Bushell school will soon be substituted.

*** The Brooklyn and Manhattan comparison schools housed exemplar open classrooms that were observed. The E. Orange school housed a conventional classroom used as part of the Fal '70 pilot study observations.

The response rate for the teacher questionnaire was 74%, which means in this case that overall, about three quarters of the teachers in every school in which we attempted to administer our instrument actually completed it and returned it to us. The aides response rate was 80%[2]. The completion rate for parent interviews is close to 50%, and we must consequently use particular caution in interpreting these results. We must point out here that virtually all of these interviews were conducted by one half-time person who served as the interviewer. In other words, the investment in the parent interview collection was not very large.

Outline of the Social Context Study Report

The following presentation of the findings of the social context study will discuss separately the parents, teachers, and aides studies, in that order. The data from the interviews with the administration is not analyzed separately, but is used throughout both to inform our pictures of the models and to verify the reports of the different groups. We have included as appendices to this chapter of the progress report three feedback reports to our respondents which were drawn up by the present authors but which, because of the policy of the Follow Through Research and Evaluation Office, were never released to those respondents. The information contained in those reports has often been included in the body of the chapter, so the reader should view those appendices not as additional analyses, but rather as attempts to present a simply but honest picture of some of the highlights of the data to parents, teachers, and aides.

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[2] This figure excludes the aides from comparison schools, since they are not included in the present analysis.

An Analysis of the Parent Data

Peter Shaw

Introduction

A condensed and largely qualitative version of the analysis of the parent data that was completed at the time of the last Progress Report is contained in the "Report to Parents" which serves as an Appendix to this section. But since the main emphasis of this present analysis of the parent data will be on the impact of the programs on parents' values, an issue not dealt with in the "Report", it is useful to give a brief summation of the content of that memorandum.

The initial stages of the analysis of parent data revealed interesting and distinct differences between Follow Through models on a number of issues. There also emerged a clear distinction between parents with children in all Follow Through models and those whose children were not in Follow Through. It seemed that nearly all Follow Through parents were much better informed about the content and style of their children's classroom life than non-Follow Through parents. Follow Through parents' descriptions of their children's classroom reflected a comprehensive awareness of subjects taught, and some knowledge of teacher deployment within classrooms (cf. Fourth Progress Report, pp. 216-218). These descriptions showed a consistent match with the distinctly different content of each model's classrooms, leading us to believe that the Follow Through parents we surveyed have a fairly complex and accurate picture of each model's classroom content, although our survey picked up less of the equally distinct structural characteristics of each model's classroom style, for instance, the nature of teacher-child interaction.

Although all Follow Through parents showed more contact and communication with their models through visits to school and classroom than non-Follow Through parents did with their schools, distinct variation between Follow Through models appeared. Due to the considerable emphasis in the Bushell program on parent involvement, parents in this program had the greatest amount of contact and communication with their program. Perhaps due to Bank Street's lack of emphasis in this same area, at least in the three communities where our sponsor-selected exemplar classrooms were located, parents in this program showed the least contact with school and classroom. E-B parents were in between these two.

In terms of homework, another measure of parent-program contact we have not previously reported, nearly all Bushell and Engelmann-Becker parents claimed they helped their children with schoolwork at home, while 78% of the Bank Street parents made this claim, compared with 72% of the parents of children in Comparison schools. Some four-fifths of Bushell and Engemann-Becker parents also claimed that they helped their children with school work taken home three or more times a week, while this high frequency of assistance was reported by half the Bank Street parents and three-fifths of the parents of children in Comparison schools. Thus in terms of this measure of contact with the model through the child, Engelmann-Becker and Bushell parents showed a similar high level of contact, while Bank Street parents showed less contact of this type. The Comparison schools' parents appeared to help their children slightly less than the Follow Through parents as a whole, but those who did help did so slightly more frequently than Bank Street parents.

The pattern the "Report" showed in regard to knowledge of and participation in PAC was that more Bushell parents were aware of that organization's existence, and were more active in it than Bank Street and Engelmann-Becker parents. Of these two programs, Bank Street parents seemed to be slightly more aware of PAC's existence than Engelmann-Becker parents, but a low percentage of parents in both programs were active in these organizations. What seemed to be happening was that Bushell's involvement of parents as volunteers and employed paraprofessional staff carried over into a more active participation in PAC.

As always, it is important to state here the fact that this study is a preliminary one, that it contains a small number of parents, and that the above reports only the most obvious marginal relationships. It is also important to point out that the communities surveyed were chosen on the basis of exemplary model classrooms, not exemplary parent programs. Still, considering the narrow scope allowed this portion of the study, interesting differences between programs have emerged. The "Report to the Parents" and the more detailed "Analysis of Project Differentiation in Parent Interview Data" contained in the Fourth Progress Report make two central points - that all Follow Through programs are accurately transmitting some important aspects of classroom activity to the parents, but that actual parent contact with and direct involvement in the program varied by model.

One question which seemed naturally to follow from the above issues was whether parents' norms and values vis a vis their children's behavior in the home had been changed by the impact of the models. Given the fact that almost all parents claimed to like the Follow Through programs their children were enrolled in, plus the fact of an apparent understanding of classroom academic emphasis in all models, and that all Follow Through parents seemed to have more contact with school and classroom than non-Follow Through parents, one might expect the Follow Through models to have made some impact on parents' values. Furthermore, we were aware of the high degree of parent involvement in the Bushell program, and wanted to see if this added factor resulted in a higher transference of values from model to home. The analysis of the data in pursuit of these objectives was somewhat difficult due to the small number of respondents, but we have confidence in the three or four basic points made in the next section.

Influence of Model on Home

Measuring the influence of each model on the home would be a highly complex task in the best of research settings. We will make a very modest attempt to assess this impact by looking at a few norms for children's values and behavior which parents expressed. First, however, we can report a table which appeared in the Fourth Progress Report which shows the responses to the question "Does the model influence your behavior towards your child?"

Table 1: % of Parents Reporting Model's influence on Their Behavior Toward Their Children.

	Bank Street	Bushell	E-B	Comp.
Yes, influence	19%	42%	45%	0%
Total N	(36)	(41)	(40)	(20)

From this table, it appears that a sizeable percentage of Bushell and E-B parents claim that the model has affected their behavior towards their children, whereas a considerably smaller percentage of Bank Street parents felt this way, and the comparison school parents did not believe their schools had any effect.

We will not try to trace the origins of expressed program influence here. We might hypothesize that take-homes in E-B and parent participation in Bushell might have been the principal determinants of the expressed influence in these two programs. In Bank Street, actual lack of effective parent programs in the projects we surveyed and program de-emphasis of homework (despite parents relatively frequent mention of it) might have accounted for Bank Street parents' low claim of program influence. But here we are less concerned with the origins of expressed program influence than with the fact that it exists as an expression, and the fact that it co-exists with measures of parents' values and expressions of what was satisfactory in the behavioral impact of their children's various programs. What we wanted to do was simply to test whatever the differential impact of the models (Table 1) was in any was reflected in the values and satisfactions expressed by parents. In order to test this, we chose three indicators from parents' responses to the questionnaire. These were:

1. The mention of child's obedience to parents as a value taught to children in the home.

2. The mention of independence (defined as "being curious about things","thinking for self") as a value taught to children in the home.

3. The child's socialization to norms of conformity as a reason for parents' satisfaction with the model in the classroom.

The marginals by program for these values were as follows:

Table 2: % of Parents Citing Two Important Values Taught in the Home, and One Satisfactory Effect of Child's Program.

	Bank Street	Bushell	E-B	Comp.
Obedience (value)	56%	51%	53%	57%
Independence (value)	31%	42%	30%	29%
Conformity (satisfactory model effect)	58%	44%	43%	36%
Total N	36	41	40	20

This table seems to present us with some variation by program. Bank Street parents, for instance, seem to find satisfaction with the child's socialization to norms of conformity as a feature of the Bank Street program. A higher percentage of the Bushell parents seemed to emphasize Independence as a value stressed in the home. But we must be very careful about interpreting these results, because the question which naturally arises at this point is whether these values and behavioral norms derive from the child's involvement in the specific Follow Through model or from other sources, such as parents' income or educational level. That is, are we really free to talk about the effect of the Bank Street or Bushell programs? For we see that for all parents surveyed, including those with children in Comparison schools, 20% more parents said they emphasized Obedience than Independence. This does not seem to be a programmatic effect. Therefore, to reiterate: the question we are asking here is whether programs have in fact affected parents' values, or whether our results in Table 2 are better explained by background variables unrelated to the Follow Through experience.

The first step in this analytic procedure was to isolate three variables which seemed to have the most ability to differentiate the data. These were: whether the respondent was on welfare or not, whether or not the respondent had graduated from high school, and whether or not he respondent or his household earned over $5,000 per year. These became the three dichotomous independent variables:

Welfare: Yes, No
Education: High, Low
Income: High, Low

These dichotomous variables were then each run against the three dependent variables, Obedience, Independence, and Conformity, with the following results:

Table 3a: % of all Parents who Cited Obedience as an Important Value Taught in the Home, by 3 SES Indicators.

	Welfare		Education		Income	
	Yes	No	Low	High	Low	High
Yes, Obedience	56%	51%	63%	50%	63%	42%
Total N	(61)	(75)	(76)	(55)	(76)	(57)

Table 3b: % of Parents who Cited Independence as an Important Value taught in the home, by 3 SES Indicators.

	Welfare		Education		Income	
	Yes	No	Low	High	Low	High
Yes, Independence	28%	39%	25%	47%	24%	44%
Total N	(61)	(75)	(76)	(55)	(76)	(57)

Table 3c: % of Parents Who Cited Conformity Taught by Model as a Reason for Satisfaction with Follow Through.

	Welfare		Education		Income	
	Yes	No	Low	High	Low	High
Yes, Conformity	52%	41%	45%	45%	51%	40%
Total N	(61)	(75)	(76)	(55)	(76)	(57)

To best organize the interpretation of these tables, it is perhaps useful to set forth some hypotheses about what values we would normally associate with low or high income, low or high education and presence on or absence from welfare rolls. If we take Kohn's (1969)* theories about the effect of father's social class on values for children, and apply them generally,
might
we/expect parents with low education to place a high value on Conformity and Obedience and a lower value on the child's Independence. In the same way, the low income of parents could be expected to produce a similar adoption of Conformity and Obedience as important norms, at the expense of a child's Independence. We would also expect the converse of these propositions to be true, that is, high education or high income would be associated with parents giving a low value to Conformity and Obedience, and placing a higher value on Independence. Whether or not a person was on welfare might have the same associations, that is, those receiving welfare might (by similar criteria) be less likely to favor Independence and more inclined to value Obedience and Conformity.

Despite the simple appeal of these theoretical constructions, one does not really expect such topical theories to be affirmed in actual data. But in this case, the three independent variables seems to have a very definite relationship with the values examined in essentially the same way theory would have us believe. That is, poverty characteristics are associated with a high priority placed on Conformity and Obedience and a low priority assigned to Independence while characteristics of a higher socio-economic status (SES) are associated with a greater acknowledgement of the importance of Independence and a lower valuing of Obedience and Conformity. The two exceptions to this generalization are that education level does not seem to be related to approval or disapproval of Conformity and that being on welfare does not dramatically relate to whether parents had Obedience as a value they encouraged.

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*Cf. Class and Conformity by M. Kohn (1969) pp. 51, 52.

Perhaps at this point it would be useful to recapitulate what we have done so far, and our rationale for doing it:

1. When we ran Table 2, it seemed that regardless of whether they were involved with Follow Through or not a higher percentage of all parents surveyed emphasized Obedience than emphasized Independence as values taught in the home. This fact alone indicated to us that having a child in Follow Through did not seem to change the extent to which these two values were emphasized by children's parents.

2. On the two in-home values of Obedience and Independence there was little difference between Follow Through programs themselves, or between them and Comparison school parents except that a somewhat higher percentage of Bushell parents seemed to emphasize Independence. But even here, a further analysis (tables not shown) demonstrated that a much higher percentage of high income and highly educated Bushell parents emphasized Independence than low income, low education Bushell parents. In other words, SES factors had apparently done much to determine Bushell parents' emphasis on Independence as a value taught in the home, as was the case within the other parent groups.

A further fact, namely that the Bushell parent population had considerably higher education and income levels than the other parent populations thus seems to account for Bushell parents' greater emphasis on Independence (42% Table 2) relative to the other parent populations. Here too, then, program characteristics seemed of small importance in determining emphasis on the value of Independence.* In general, then, being in a specific Follow Through model did not seem to account for the extent to which parents emphasized these two values. Perhaps, then, we thought, the emphasis on Obedience and that on Independence could be accounted for by socio-economic factors.

3. When the tables were run, it appeared in general that socio-

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* On the other hand, this level of analysis does not attempt to correlate the findings of in-classroom behavior setting analysis with parents' attitudes. In this respect, we note with interest the co-existence of Bushell parents high valuation of Independence and the fact of Bushell's low percentage of high teacher pacing in the classroom. (CF. Table 2.11, Chapter 2 of this Report).

economic factors were more important than model in determining values. That is, low income, low educational level and being on welfare all had a marked positive relationship with parents' heavier emphasis on Obedience, and a markedly negative relationship with parents lack of emphasis on Independence.

4. At this point, we now wish to know to what extent the phenomenon of high SES impact and low model impact on these in-home values holds true within each Follow Through model. Therefore, we will run the SES related variables by model in order to gauge the relative influence of SES within each model.

5. In the case of Conformity as a behavioral norm taught in school, we have the same interest in examining the relative influence of SES factors within each model. But while the in-home values of Obedience and Independence showed little differentiation by model, Table 2 did show us some model differentiation on the issue of Conformity. Table 3c seemed to be somewhat inconclusive as to the effect of SES-related factors. So our interest now is in seeing if we can discover within what models SES accounts for approval of Conformity and within what models the model itself accounts for this emphasis.

There are, however, still other important reasons for running the independent variables of SES and model together against the two in-home values of Independence and Conformity. The analysis of the separate effects of Program and SES factors on the two in-home values of Obedience and Conformity so far surprises us.

- it surprises us because we know that parents in different programs have different amounts of contact with their programs through homework help, school visiting and actual work in the program as aides and volunteers. Why then (at least at this level of analysis) do values which might be be influenced by such contacts show little differentiation by program? Does a high level of participation in, and contact with, a program have no effect on these two important in-home values? We need to run SES by program on these values to determine if this is so.

- it surprises us because we also know that parents have explicitly claimed differential amounts of influence on their behavior towards children (cf. Table 2). And yet SES factors, not program influence, seem to be responsible for parents responses about Obedience and Independence as values. This is another reason for determining the extent of SES influence on the different programs. Are there individual programs which are exceptions to the rule, where SES factors are not important in determining one of the two values?

In this report we will not reproduce all of the numerous tables which were run according to the logic suggested above. Instead, we will report some of the results of this procedure. The results of these tables show an interesting distinction between the two values of Obedience and Independence taught in the home, on the one hand, and Conformity as a norm taught by the model in the classroom, on the other. Let us first briefly discuss the two values taught in the home.

In the case of these two, Obedience and Independence, it was clear that the SES-related variables retained their relationships to the dependent variables within each model, or to be more emphatic about it, they retained their influence regardless of the various Follow Through models. Thus, in terms of these two variables, socio-economic background seemed to account for most of the relationships which appeared in Table 2 to be simply the result of having a child in a specific Follow Through program. This means, for instance, that we can say that the differential emphasis on Independence as a value children are taught at home is not really due to the effect of the models themselves, but is due more to SES-related factors of parents' education, income and whether the respondent was on welfare or not.

The answer to the question we set ourselves at the beginning of this report, whether models affected parents' values, therefore, seems to be that they did not, at least not these two important values. But nearly half the Engelmann-Becker and Bushell parents told us they were influenced in their behavior towards children by the programs (cf. Table 1). How do we account for this apparent contradiction ?

We could begin by recalling Kohn's contention that SES factors to a large extent determined parents' attitudes vis a vis values parents emphasize to their children. In this case, we would expect low income parents to emphasize Obedience as a norm more than high income parents, and high income parents to value Independence more than low income parents. And the data show that these two propositions hold true, even in the Bushell model where we know of the high level of parent involvement and high percentage of parents who claimed model influence on their behavior, as well as the Engelmann-Becker program, nearly half of whose parents claimed to be influenced. Our explanation for this apparent discrepancy between claimed influence and evident lack of it in these two important norms would be simply that parents see what they want to see in program influence, and what they want to see is determined by SES factors. The impressive uniformity of SES effects across programs seems to confirm this interpretation. Perhaps what happens is that if parents are poor, they will interpret positive reinforcement techniques as supporting Obedience, or if they are richer they might perhaps see increased classroom staffing and small group instruction as supporting Independence. We conclude then, that parents may claim the programs have influenced them, but this really seems to mean that they see programs as reaffirming their own values, which are in turn a result of socio-economic factors

The situation with the dependent variable Conformity is less clear. This variable, which represented the parents' citation of models' emphasis on a child's conformity as a reason for their own satisfaction with their Follow Through model (or their child's school, in the case of Comparison parents), was not consistently affected by the SES variables of income, education and welfare status.

Let us first look at the effects of SES variables on Conformity as they appeared in the tables we ran:

Table 4: % of Parents Citing Conformity Taught In-School as a Reason for Satisfaction with Model or School, by Model and SES Factors.

WELFARE

Bank Street		Bushell		Engelmann-Becker		Comparison	
Yes	No	Yes	No	Yes	No	Yes	No
73%	48%	48%	35%	47%	42%	38%	63%*

EDUCATION

Bank Street		Bushell		Engelmann-Becker		Comparison	
Low	High	Low	High	Low	High	Low	High
48%	72%	42%	43%	43%	41%	55%	16%

*The comparison parents included a group with low incomes who had not claimed welfare because of a fear of being discovered by immigration officials. This fact may have accounted for the high percentage of non-welfare parents in this cell.

INCOME

Bank Street		Bushell		Engelmann-Becker		Comparison	
Low	High	Low	High	Low	High	Low	High
68%	50%	37%	50%	52%	27%	47%	16%

From this table it does seem that within Follow Through, being on welfare had the expected effect of producing a higher percentage of parents who saw Conformity as a satisfactory norm taught by the model, although the effect in the Engelmann-Becker program is not large. Lower income also has a similar effect except in the Bushell program, where low income parents were less inclined to cite Conformity as a value taught by the program. Educational status seemed to have little effect on parents attitudes towards Conformity in the Bushell and Engelmann-Becker models, although it had the expected effect among Comparison school parents. High education Bank Street parents, on the other hand, seemed to be much more enthusiastic about Conformity as a program sponsored norm than low education parents.

What is of particular interest to us here is the effect of educational status in all models and the unexpected effect of income in the Bushell program. In terms of educational status, we will deal with the case of Bank Street first. If we refer back to Table 2, we see a higher percentage of all Bank Street parents saw Conformity as a programmatic effect than did parents in other programs. This now seems to be accounted for not so much by low education parents, as Kohn might lead us to expect, but by, to some extent, high education parents. We can say this because we know that for some reason, Bank Street's highly educated parents were much more emphatic about seeing Conformity as a norm taught by the program than the highly educated parents in other models. Thus, it seems to be these highly educated Bank Street parents who are responsible for Bank Street's relatively high approval of Conformity in Table 2. But, for the low education parents, this status seemed to have little effect, in fact they seem to be at about the same level as the other low education Follow Through parents. For the other two Follow Through models, educational status had little discernable effect, while for the Comparison school parents, Conformity was seen as somewhat more important for low education respondents.

Let us now recapitulate our analysis of Table 4 (EDUCATION) to this point and make some further interpretations of this table.

1. For all low education Follow Through parents, we now know that something has nullified the usually powerful effect of low educational status, at least in terms of citing Conformity as a reason for satisfaction with their programs.

2. Moreover, if we isolate out the erratic behavior of the well educated Bank Street parents in Table 4, we could say that some factor common to all programs has eliminated not just the effect of low educational status among those who approved of Conformity, but of educational status generally within all models. We can say this simply because within the Engelmann-Becker and Bushell models, high and low educational status parents approve of Conformity to the same extent.

3. Again, if we disregard momentarily the well-educated Bank Street parents we can go one step further. We can look at Table 4 (EDUCATION) and see that within Follow Through, low education Bank Street parents and all other Follow Through parents approve of Conformity in their models to about the same extent (about 43%).

4. Thus, in general, the effect of being in different models, as well as at different educational levels, is eliminated as a factor accountable for the approval of Conformity within Follow Through.

5. On the other hand, since the effect of low education level does retain its expected effect in the Comparison parents group, we come to the

tentative explanation that some uniform factor common to all Follow Through programs surveyed eliminates the effect of educational level as well as the effect of being in different programs.

But what could be a uniform effect of educational models which differ so dramatically in classroom style and, indeed, in their parent programs? Two alternatives present themselves:

1. The uniformity might exist in the public relations effort of all models. This occurs to us, because a reading of program statements of intent shows that they all trade heavily on the fact that theirs is a _compensatory_ education program, and that therefore changes should be encouraged in the child to make him a more effective learner, and that these changes must be social as well as cognitive.

2. The uniformity might exist in the parents' conceptions of the school as a socializing agent, and a socializing agent which parents increasingly rely on to teach their children the values of conformity (cf. Bronfenbrenner, 1970).

The most plausible explanation is probably a combination of these two, whereby regardless of their educational status, parents receive the message that their child will, as a result of being in a Follow Through program, in some way be encouraged to change his behavior in a way which will make him a more effective person and, therefore, a more effective learner. And since parents increasingly put the burden of socialization to conformity on the school, they assume that changes which occur within the child will emphasize his increased conformity to teachers' and class norms. It seems likely that models' emphasis to teachers' and class norms. It seems likely that models' emphasis on themselves as change agents might account for the marginal findings in Table 2, which show all Follow Through parents as seeing Conformity as more important than Comparison group parents. We can say this because other tables (not shown) indicate that Conformity was overwhelmingly the dominant factor all parents in all schools or models cited as reasons for satisfaction with behavioral emphasis wrought by school or program. In other words, to the Follow Through parents, the promise of increased change in a child seems to have meant increased Conformity. For the Comparison school parents, the lower profile of their conventional second grade programs meant they saw the schools as less effective in performing a key function, that of socializing the children to Conformity.

Let us now turn our attention (belatedly) to the fact that in Table 4 income does not differentiate Bushell respondents who cited Conformity as a satisfactory norm emphasized by their program. In this case, since neither educational level or income level effects the extent to which Bushell respondents approved of Conformity, we might tentatively suggest that the same factors of program emphasis as a change agent and predisposition to see Conformith as a school-taught norm are common to both high and low income and high and low educational levels within this program. But at this point, this is merely an hypothesis.

To conclude this discussion of parents' perception of Conformity as a school-taught norm, we could say that, in the same way that parents seem to cite Independence and Obedience as values taught in the home according to their SES levels and in spite of claimed influence of programs and actual contact with them, so too the interpretation of Conformity as a school taught norm does not seem to derive from the effect of contact with model and classroom in Follow Through. The salient differences between the emphasis on the in-home values and perception of in-school norms is that in-home values are stressed as the result of SES factors, while parents' perception of the school as a socializing agent is not a notion which is class-based. But both of our explanatory factors, SES and conception of school as a socializing agent to Conformity, pre-date the implementation of Follow Through. Furthermore, these two variables seem to have been largely responsible for parents in-home values (in the case of SES) and for parents finding socialization to Conformity a satisfactory result of Follow Through program (in the case of concept of the school as socializing agent).

Conclusion

In this brief report, we have touched on some salient characteristics of parent attitudes within the three Follow Through models and a set of comparison schools. The first section of the report reviewed past analysis of the data, and demonstrated the relatively greater awareness of classroom practice and greater contact and communication with school and classroom which all Follow Through parents had as opposed to non-Follow Through parents. We then presented evidence of differential parent involvement in the activities of the model, including PAC. In terms of these latter two issues, the salience of the Bushell parents in volunteering, being employed within the program and PAC activity was noted.

The second section of this report dealt with the issue of whether expressed parent claims of program influence on them were translated into actual norms as a result of program influence. This did not seem to be the case with the two values emphasized in the home, Independence and Obedience, for the SES factors of educational level, income level and welfare status determined these. It seemed then that parents who claimed the programs had influenced them in their behavior, saw program influence as they wanted to see it, and the way they wanted to see it was determined by SES factors. On the other hand, the programs did seem to exert some kind of influence on parents' conception of behavioral emphasis in school in spite of SES factors, as we demonstrated in our discussion of Conformity as a program-taught norm. It seemed sensible to make a division between the value taught in school (Conformity) and those taught in the home (Independence and Obedience). In the case of the school-taught norm, there seemed to be at some level a uniform effect in all models on Follow Through parents, which was possibly a combined effect of all the models representing themselves as change agents, and many of the parents' predisposition to interpret change as change towards emphasizing Conformity across all the programs. This seemed to hold true regardless of the amount of contact parents had had with their different programs. In the case of the in-home values, other predispositions, based on social class, or SES factors, seemed to account for emphasis on Independence or Obedience as in-home values. And for the most part, this held true regardless of the amount of contact parents had had with their different programs, and in spite of the finding that parents in different programs had claimed rather different amounts of program influence on their in-home behavior with their children.

An Analysis of the CCEP Teacher Survey Data

Walter Furman

How do different models, (Follow Through and comparison) initiate and maintain teachers in their roles? What different organizational solutions to the problems of control and coordination do we see in Follow Through, and how do these 'solutions' affect the teachers working in the programs? This report of the data analysis from the CCEP teacher survey will address those questions.

It hardly seems necessary for the social context component of an observational study to describe the role of the teacher. That is done precisely and in detail elsewhere in this volume. However, for our purposes, from the point of view of the organization and its control over the actions of the individual teacher, the roles of the teachers in the various models vary from highly prescribed to hardly prescribed. If we look at the autonomy of the teacher in each model, and the amount of legitimate discretionary control she exercises over the classroom in her charge, we find the following pattern. The Engelmann-Becker teacher's role is very highly prescribed, the Bushell teacher's role highly prescribed, yet less precisely than that of the Engelmann-Becker teacher, the Bank Street teacher's role far less prescribed, and the role of the teacher in the comparison school rather free from all but the most general and non-specific prescription. Those generalizations, though almost self evident to one familiar with the different models, can be supported by specific evidence regarding teachers' control over such things as the content and pacing of the instruction they offer in their classroom,[1] their control over the grouping of the children they work with, and their control over the utilization of the other adults working in the classroom along with them.

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[1] Refer to the CCEP Fourth Progress Report, pp. 207 and 208, for two tables showing how teachers' job definitions vary from discrete teaching of certain subjects to a general avowal of overall responsibility for the classroom.

The point being made here is that the different sponsors have deemed it necessary to control in more or less detail both the content and style of the interactions between teachers and pupils. This we can attribute to their educational philosophies and priorities, and their organizational predilections, not to mention the degree of resources and control available to *them*. Yet once one is committed to a program of classroom instruction necessitating a certain degree of control over the teachers, a whole set of arrangements must be instituted which in turn influence the course of events. It is to those arrangements and consequences that we now turn our attention.

Recruitment and Socialization

We begin our look at the programmatic treatment of teachers by looking at several variables associated with recruitment and socialization. Perhaps models rely on recruiting highly committed teachers, or teachers with certain social backgrounds, in order to insure conformity with model appropriate norms.

The data from our survey is equivocal about the above hypothesis. From a general knowledge of the distribution of values within the American class structure one would expect that high education and high occupational status would accompany individualistic, or "liberal" values[2], and therefore that the less prescribed program, in terms both of its treatment of children and of teachers, would attract personnel of greater education and higher class (or occupational) background. The evidence on the above questions is unclear. Table 1 shows that Bank Street and comparison teachers tend to have somewhat more education beyond the Bachelor's degree than do the Engelmann-Becker or Bushell teachers, which tends to confirm our speculations about differential recruitment of social class types by models.

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[2] See Melvin Kohn, *Class and Conformity*, for one excellent source, among many, of this type of information.

Table 1: Teachers' Education, by Model

	Bank St.	Bushell	E-B	Comp.
Bachelor or less	60%	70%	86%	43%
Greater than Bachelors	40%	30%	14%	57%
N =	37	26	28	21

Table 2, on the other hand, shows that the Bushell teachers most often had fathers with professional or managerial backgrounds.

Table 2: Occupational Status* of Teachers' Fathers, by Model

Occupational Status*	Bank St.	Bushell	E-B	Comp.
High	35%	65%	35%	50%
Medium	23%	20%	30%	28%
Working	42%	15%	35%	22%
N =	36	21	21	20

* In this table, "High" includes professional, executive and managerial positions. "Medium" is semi-professional, small business, sales, clerical, and technical. "Working" includes skilled and unskilled labor.

Clearly, then, although there are some slight differences in the social backgrounds of the teachers in the different models, the main basis of social control by the models over teachers is not the selection of particular social class types. But one could suggest that the recruitment need not be of particular social class types but rather of teachers committed to the approach of the program, and that would insure proper model implementation and teacher norms. Our data show that in general, with only comparison schools excepted, about half of the teachers in all models felt that wanting to work in the particular program was a very important factor in their taking the teaching job and therefore attitudes formed prior to joining the program are, in fact, a strong influence on many teachers in all models. Table 3 presents the data on two questions regarding commitment and voluntarism of recruitment, and on both measures we see that the Engelmann-Becker teachers were initially slightly less committed to their programs. This initial hesitancy of many Engelmann-Becker teachers, perhaps because of the high role prescription in the program, but certainly in conjunction with it, creates high demands for other types of social control in that program, as we shall see later in this analysis.

Table 3: Percent of Teachers Citing Two Recruitment Factors as "Very Important" Reasons for Taking Their Job, by Model.

Recruitment Factor	Bank St.	Bushell	E-B	Comp.
1. Wanting to work in the Program	49%*	56%	43%	36%
2. Assigned to the Job by the Local Ed. Agency	26%	26%	40%	27%
N =	39	27	28	22

*N.B. The entries in this table are the percent of teachers who said this factor was a very important reason for taking their current job.

The second major class of variables that we will consider as we look at how these models initiate and maintain teachers in their roles we term socialization, or the methods by which teachers learn the appropriate role behavior and expectations for their position. Here we must refer the reader to the Fourth Progress Report (pp. 200-204) in which we constructed, from items on the teacher questionnaire, a fourfold typology of socialization mechanisms applicable to the teachers in these models. To reiterate briefly, the types we identified were (1) intentional training by the program, (2) formal professional training, (3) personal experience, and (4) collegial help and orientation.

Table 4 shows a composite index of the importance of several methods of intentional training and orientation provided by the models for their teachers.[3] As we reported, from partial data, in the Fourth Progress Report, all Follow Through teachers feel that the training they are offered is more important for their job orientation than do the comparison teachers. But we also find in this table that the Engelmann-Becker teachers report the highest degree of importance associated with the training offered them, and this fact accords well with our picture of the highly prescribed model necessitating a high degree of technical training.

Table 4: Percent of Teachers Scoring "High" on an Index of the Importance to them of In School Training Mechanisms, by Model.

	Bank St.	Bushell	E-B	Comparison
% High on In School Training	68%	57%	83%	32%
N =	38	28	28	22

As regards the three other types of socialization mechanisms, our findings were as follows. First, formal professional training was not too important for teachers in any model. Personally gained knowledge (for example, children's reactions, or books and articles teacher's read on their own) were usually the most important sources of orientation for all teachers, with there being a slight trend in the data for teachers in the more prescribed programs to rely less on their personal experiences. Lastly, the results on orientation by colleagues (both other teachers and paraprofessionals) showed some interesting patterns. The comparison teachers are highest on the importance to them of "knowledge gained from other teachers" in orienting to their job, perhaps reflecting the paucity of other relevant channels available to them. And within the Follow Through models, the Bushell teachers stand out as imputing major significance to aides in helping them learn their job, unlike the teachers in the other models.

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[3] Three items were combined to form this index. They are: (1) In-Service Training, (2) Special seminars or training sessions prior to beginning the job, (3) Supervision and feedback from the administration.

We interpret the above findings on mechanisms of socialization to be, by and large, in accord with the degree of prescription of the teacher's role in each model. Teachers from the Engelmann-Becker model, the most highly prescribed, emphasized most those formal organizational processes that are provided to ground them in the proper pedagogical techniques. The Bushell model, though highly prescribed, puts a degree of responsibility for classroom planning and direction of other classroom staff on its teachers, and so we find the increased importance of orientations derived from other members of the classroom team, though not particularly from other teachers. The Bank Street model seems to provide many important training opportunities, and, in effect, seems to socialize its teachers by using both formal and informal mechanisms. And in the comparison schools, where the teacher's role is least highly specified (though the pupil may in fact be highly controlled), the emphasis in socialization shifts from either the administration, or the aides, to one's professional colleagues, and they become the most important reference group.

Supervision and Evaluation

In the day to day life of an elementary education program, the interactions between teacher and program administration constitute another major determinant of the teacher's outlook. This is especially so in Follow Through, in which a systematic educational innovation is imported into a community and is then supposed to be carried out by the local cohort of teachers.

We report below our findings on three issues related to program supervision.

1. The frequency of classroom observations.
2. How often teachers ask for help.
3. What teachers think the administration wants in the classroom.

The general issues we are addressing here is that of control, i.e., how do the different models assure compliance with their programs. The next two paragraphs are quoted from our "Report To Teachers", pages 3 and 4.

> Engelmann-Becker teachers consistently report the greatest number of observations per month of their class by the project administration, almost eight such visits per month. Bushell and Bank Street teachers report two and four classroom observations per month, respectively. However, it seems that the Bank Street and Bushell teachers are more likely to ask for help that involves classroom observations than are the teachers in the Engelmann-Becker and conventional schools in our study, as is shown in Table 5.

Table 5: Percent of Teachers in Each model that have requested classroom observation.

Model	Percent requesting observation
Bank Street	85%
Bushell	72%
Engelmann-Becker	54%
Comparison	55%

> What is the project administration looking for when they observe in a classroom? We were interested in teachers' answers to that question, since this gives us a clue as to how the goals of the different Follow Through models are interpreted at the grass roots. Briefly, Engelmann-Becker teachers saw their administration as looking for four things: (1) 'evidence of children's learning,' (2) 'the enthusiasm the children show in their work,' (3) the teacher's 'following closely a prescribed lesson plan', and (4) the teacher's 'ability to maintain an orderly classroom.' Bank Street teachers also see their administrations as looking strongly for evidences of children's learning and enthusiasm, but they do not believe as strongly as the E-B group that their administrations are looking at their ability to maintain order, or their following closely prescribed lessons. The Bushell teachers are much like the Bank Street group on those issues, except that they perceive that their administrations do in fact look carefully at their ability to maintain an orderly classroom. Looking at the comparison teachers is instructive in this regard. They believe, more than any of the Follow Through groups, that they are being evaluated on their ability to maintain an orderly classroom, and while they still report strong administrative concern over children's learning, their responses show that they feel less pressure to produce evidence of children's learning than any of the teachers in the three Follow Through models.

Compliance is assured by observation and by transmitting to teachers the expectations of the administration. It is also aided by mechanisms of evaluation, and the mechanisms by which teachers evaluate themselves. Table 6 shows the percent of teachers in each model that report a particular type of record was made by the program administration about their performance.

Table 6: Percent of Teachers Reporting the Use of Three Types of Records, by Model.

Type of Record	Bank St.	Bushell	E-B	Comparison
1. General impression of a supervisor	29%	37%	58%	59%
2. Detailed recording of how you handle children and employ materials	13%	44%	54%	18%
3. Videotaping	21%	19%	92%	9%

Here we see that the Engelmann-Becker model, as perceived by its teachers, is very high on the use of all three types of evaluatory records. Only the teachers in the programs with the highly prescribed teaching roles, E-B and Bushell, report being evaluated in terms of a detailed analysis of their pedagogical techniques. The Bank Street and comparison models rely either on general observations of supervisors, or on other, non-formalized mechanisms of teacher self evaluation.

We found in our data several interesting patterns of informal social organization that varied according to the prescriptiveness of the model and which bear on the general question of teacher evaluation and model implementation. Table 7 reports some results from a question which asked teachers to select several criteria by which a good teacher knows she is doing a good job.

Table 7: Percent of Teachers Selecting Three Criteria for Judging the Effectiveness of Good Teaching, by Model

Criteria	Bank St.	Bushell	E-B	Comparison
1. The reaction of informed colleagues.	33%	15%	12%	46%
2. The results of objective tests.	13%	62%	62%	18%
3. Their own observations of students in light of their personal goals.	75%	77%	77%	82%
N =	39	26	26	22

The import of this table is that, although the highest percentage of teachers in all programs propound a "professional" type self evaluation, (item number 3) the results on criteria 1 and 2 show drastic differentiation by model. Teachers in the highly prescriptive programs, E-B and Bushell, orient away from colleagues and towards those criteria that are valued by the administration. But the comparison and Bank Street teachers are more oriented towards their collegial reference group, as we suggested in our discussion of socialization, and as is also pointed to by the data in Table 8, below, which deals with teachers' communication patterns.

Table 8: Percent of Teachers Reporting They Normally Talk to Other Teachers about 3 Topics, by Model.

Topics	Bank St.	Bushell	E-B	Comparison
1. Children's schoolwork	36%	8%	25%	55%
2. Opinions about Follow Through*	58%	58%	32%	67%
3. Personal feelings about yourself and your job.	61%	23%	22%	82%
N =	36	27	28	22

*For the comparison teachers, the question read, "Opinions about the educational program you offer."

Obviously, the overall level of teacher-teacher communication is highest in the comparison and Bank Street models and lowest in the Engelmann-Becker and Bushell models. And though these patterns of informal social organization are not directly mandated by the Sponsor's model, they arise as results of the organizational form adopted and as we shall show below, in turn affect the attitudes of the teachers working within each model.

* * * *

Social Context and Educational Attitudes

To summarize in a sentence the preceding sections of this report, they have been an overview of the mechanisms used by each program to initiate and maintain teachers in their prescribed roles. The coming section is an attempt to relate those different organizational patterns we have sketched to the educational norms held by teachers. The findings of this section must be viewed as hypothetical, since only with (1) a larger sample and (2) time series data, could we establish causality.

The basic descriptive pattern of teachers' reported norms was laid out in the Fourth Progress Report, pages 210 to 214, and the reader is referred to that document for the descriptive quantitative data of norms by model. To summarize the findings we quote from our address to AERA on 4/6/72.

> First, we found that teachers' norms about student autonomy in the classroom, about the social and academic learnings they hope to impart, vary in a way generally consistent with the characteristics of the programmatic learning environment. Thus, on an overall index of teachers' beliefs about the value of student autonomy, the child development model (Bank Street) teachers are the highest, the rational didactic (Engelmann-Becker) teachers lowest, and the behavior analysis (Bushell) and conventional teachers in the middle, but towards the autonomy end of the scale. (Parenthetic identifications added.)
>
> We found too a similar correlation between the social values teachers wanted to impart to their students (either individualistic, universalistic, or traditional authority type norms) and the prescriptiveness of the program. (cf. Fourth Progress Report, p. 213, tables 11 and 12). And finally, teachers in the more prescriptive programs were more likely to espouse the importance of learning the facts of the curriculum, and that a teacher must control the type of knowledge being imparted to students. Thus, the evidence is very strong that teachers' norms, by and large, vary in ways consistent with the program's demands.

We suggest that the social context of a program, the methods by which teachers are initiated and maintained in their roles, conditions, to a certain extent, the educational norms held by those teachers. And though we have not as yet analyzed our normative data in conjunction with CCEP's observational data in order to compare teachers' attitudes with their behavior, that is the direction along which, in the future, we intend to continue this analysis. So far, we have identified in our data 3 mechanisms by which social context variables affect teachers' norms. These are (1) recruitment and socialization, (2) administration, i.e. observation, formal evaluation, etc., and (3) informal social organization, i.e. patterns of communication within the program, and teachers' methods of informal self evaluation. We have discussed at some length the organizational patterns of each of the models on these three classes of variables in the first section of this chapter. It remains to us to identify how these variables in turn affect teachers' attitudes.

Recruitment, Socialization, and Teacher Attitudes

We believe that the method by which teachers are initiated into their teaching roles by the different models affects their norms. In this section we will use teachers' responses to two items on the questionnaire as indicators of teachers' norms about student autonomy. Teachers were asked in our survey to record the extent of their agreement or disagreement with the following two statements.

1. "Students should be given more freedom in the classroom than they normally get."
2. "The effective teacher has complete control of the learning situation at all times."

The responses we got on both items correlate highly with the responses we got on the other items of the student autonomy scale we used.[4] We chose to look at these two items in particular because (1) they differentiate the data by model, and (2) the first item relates especially to the social order of the classroom, while the second relates more strongly to teacher control over classroom learning, i.e. the knowledge order.

It was argued previously that selective recruitment by models of teachers with different social class backgrounds did not account for the differentiation we observed in teachers' norms in the different models. In examining the data on the relationship between social class backgroup (educational level, and father's occupation) and teachers' norms within each model, we find that only in the Bank Street model do teachers with higher education tend towards believing in greater autonomy for students, and then only on our knowledge order indicator. Table 9 shows this data from the Bank Street model.

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[4] The items on student autonomy scale were taken from a battery of items measuring teachers beliefs developed by Wehling and Charters, AERJ, 1969, 6, 7-30.

Table 9: Bank Street Teachers' Norm re: Control of Learning Situation, by their Educational Level.

		Education	
		Bachelor's or less	Greater than Bachelor's
Norm re: Control of Learning Environment	High Control	47%	28%
	Low Control	53%	72%
	N =	21	14

As this is the only such relationship between these variables in all the models, we can conclude that (1) overall, the relationship of model to attitudes is not accounted for by personal background variables, and (2) that only in Bank Street, in which there was a reasonably high percentage (40%, see table 1) of teachers with education beyond the Bachelor's, is recruitment of highly educated teachers a significant factor in implementing their program.

The methods by which programs socialize teachers seem to have an important effect on teachers' acceptance of model appropriate norms. Evidence from the interviews with teachers and supervisors suggests that

Sponsor's intentionally utilize techniques for teacher training similar to those utilized in the model for child instruction. In such experiences teachers learn not only the pedagogical techniques, but also to value those norms for the social and knowledge orders of the classroom environment which further accomplishment of the educational goals defined as high priority by the program.

Administration and Teacher Attitudes

The importance of a teacher's links to her program administration becomes obvious when we look at the relationship of teachers' attitudes to their closeness with the administration in the different models. Tables 11 and 12 report the relationships between the dichotomized variables of 'high' or 'low' frequency of classroom observations by supervisors, against the two normative indicators we have chosen (one in each table). Teachers' responses about their norms have been trichotomized into high, medium, and low to simplify the tables. The results for each model are presented separately. (See Tables 10 and 11 on the following page.)

The pattern is striking. In table 10, under the condition of high observation from the administration, both the Bank Street and Bushell teachers are more disposed towards student autonomy than are their colleagues who report less frequent contact with the administration. And for the Engelmann-Becker teachers the exact opposite is true. For them, high contact with the administration leads to a lesser avowal of student autonomy and greater emphasis on teacher direction of the classroom lives of children. The conclusion we draw from this evidence is that the models have different sets of norms appropriate to their classroom environments, and that a teacher's links with her administration is one mechanism whereby those norms are transmitted to her.

Table 10: Teachers' Norms for "Children's Freedom in Classroom" by Frequency of Classroom Observation, Controlling for Model.

		Bank Street		Bushell		Engelmann-Becker		Comparison	
	Frequency of Classroom Observation:	Low	High	Low	High	Low	High	Low	High
Teacher's Norm re: Freedom in class for students	% High in Class Freedom	28%	57%	43%	67%	28%	0%	50%	73%
	% Medium	50%	38%	21%	33%	22%	25%	20%	0%
	% Low	22%	5%	36%	0%	50%	75%	30%	27%
	N =	14	21	14	9	14	12	10	11

Table 11: Teachers' Norms for "Control of Learning Situation" by Frequency of Classroom Observation, Controlling for Model.

		Bank Street		Bushell		Engelmann-Becker		Comparison	
	Frequency of Classroom Observation:	Low	High	Low	High	Low	High	Low	High
Teacher's Norm re: Control of learning situation	% High Control of Learning Situation	22%	23%	67%	55%	43%	75%	0%	27%
	% Medium	22%	23%	33%	0%	43%	6%	22%	46%
	% Low	56%	54%	0%	45%	14%	19%	78%	27%
	N =	14	21	15	9	7	16	9	11

Table 11 supports the above conclusion, though not in such a dramatic way in all models. In Bank Street, observation does not seem to affect teachers' norm for controlling the learning situation. In Bushell, observation is associated overall with less control, but in a bipolar fashion; in Engelmann-Becker, with greater control, and in comparison schools, also with tighter control. The overall pattern is similar to that in table 11, but not as striking. This we attribute to the fact that the dependent variable in this case relates to the knowledge order, and that administrations normally pressure their teachers for evidence of children's learning, and thus are less likely to encourage teachers to lessen their control over a "learning" situation.

Informal Social Organization and Teacher Attitudes

Certainly the communication patterns which characterize a program, or the criteria by which teachers evaluate themselves informally (whether the criteria are personal, collegial, professional, or organizational) can also be construed as outcomes of model implementation. The assumption here is that these informal organizational patterns, which constitute 'natural' adaptations of people to their organizational environment, in turn affect teachers' educational norms. One important example of the above phenomenon that we find in our data is the relationship between teachers' norms for their own personal autonomy in the school organization and their norms for students' autonomy. The communication patterns in a program, the informal collegial socialization, and the patterns of personal and collegial references for self evaluation all contribute to a teacher's valuing her own autonomy. And, in all programs, teachers who value their own professional autonomy tend to favor autonomy for their students.

Table 12 presents the data on the relationship between teachers' norms for their own personal autonomy crosstabulated with their scores on an overall index of their belief in student autonomy. The results are shown separately for each model. The item used as an indicator for teachers' norms about their own autonomy asked teachers to agree or disagree with the statement, "A principal should supervise his teachers closely enough to make sure their teaching meets his standards". The responses on both variables have been dichotomized. (See Table 12 on following page.)

A finding like the one presented in Table 12 tends to confirm our previous hypothesis (cf. Fourth Progress Report) that teachers treat their students as they themselves are treated in the organization, at least in so far as their values indicate their actions. The strong independent relationship of teachers' norms for personal autonomy with their norms for students' autonomy in all models, and a consideration of those factors which contribute to a teacher's norm for personal autonomy, lead us to the tentative conclusion that the informal mechanisms which teachers use to initiate and maintain themselves in their roles do in fact condition their relationship with their students.

* * * *

Further analysis of the teacher data would seem to be warranted by the results we have obtained so far. Two questions seem of critical importance. The first is, how are teachers' norms related to their actions. The data from CCEP's coded records of teachers' behavior have just become available, and seem appropriate to this question. The second question is, what are the sources of dissatisfaction, conflict, and disagreement with model appropriate norms, in the different models. It is anticipated that these questions will be further analyzed with the CCEP's data, both in

Table 12: Teachers' Norms for Student Autonomy by Teachers Norms for Teacher Autonomy, Controlling for Model.

		Bank Street		Bushell		Engelmann-Becker		Comparison	
	Norm re: Teacher Autonomy	High	Low	High	Low	High	Low	High	Low
Norm re: Student Autonomy	% High on Student Autonomy	55%	8%	89%	54%	36%	23%	45%	25%
	% Low on Student Autonomy	45%	92%	11%	46%	64%	77%	55%	75%
	N =	18	12	9	15	14	13	11	8

reports written for CCEP and as parts of doctoral dissertations using this data to be written by the authors of this chapter.

Social Context Report on Aides

Peter Shaw

At this time, we do not feel it appropriate to present a "Final Report" on the aides. Difficulties in securing aide data in appropriate comparison school settings have been the main reason for delaying our report. Within the next few weeks, however, we hope to have solved this problem and we anticipate a report on the aides in early June.

What we can present here is our "Report to Aides, Parts I and II", (cf. Social Context Appendix C) which was intended as a feedback report for those Follow Through aides whom we had surveyed in the three programs. It is a simple report of some interesting marginals, dealing with aides perceptions of their training, their communications patterns, supervision, and their notions of the educational priorities of their separate Follow Through models. In the forthcoming Final Report we intend to deal more with socio-economic background variables and relate these to the interaction patterns with teachers. This will be an amplification of the issues so briefly dealt with in Part II of the "Report to Aides".

In any case, both social context researchers have an interest in developing studies of aides, teachers, and their mutual interaction beyond any "Final Report", since both researchers intend to use CCEP data on these populations as the basis for theses. And these dissertations, when completed, will hopefully provide a very thoroughgoing analysis of aide and teacher data.

APPENDICES
TO THE
CCEP SOCIAL CONTEXT STUDY REPORT

Appendix A. . . . . .Report to Parents

Appendix B. . . . . Report to Teachers

Appendix C. . . . . .Report to Aides

Appendix A

REPORT TO PARENTS

This report is a shorter and less detailed version of a chapter in the CCEP's Fourth Progress Report, which was sent to the Office of Education in Washington in late December. We have written it in the belief that we have an obligation to tell the PAC personnel and parents who helped us with our survey what we have done so far. We hope the presentation here will be both interesting and useful to parents and particularly to PAC members. But three things should be kept in mind while reading the report: (1) the survey was very small in scale; (2) these results are just the beginning of our analysis, not the final result; and (3) only a small part of what we have found so far can be reported in this short letter.

We chose to deal with three topics we thought would be most interesting to parents and Follow Through staff: the picture parents had of their child's classroom, the amount of contact between parents and the model, and the models' possible influence on the home life of parents and children.

The parents' picture of the classroom

The researchers felt that a main concern of all Follow Through programs was to tell parents about what new things were being taught to their children and how these things were being taught. In our small survey, we asked parents to describe what happened in their child's classroom. We simply wanted to see whether Follow Through parents knew more or less about their childrens' classrooms than parents with children in regular schools. Overall it seemed that a higher percentage of Follow Through parents could say at least something about their childrens' classrooms than non-Follow Through parents:

Per cent of parents who could say anything about child's classroom

	% of each program	total # of people
Bank Street	98%	36
Bushell	95	49
E-B	82	40
Comparison	57	21

From this table we can say that the Follow Through parents seemed to have at least something to say about the children's classrooms. Furthermore, other tables pointed out that each of the three Follow Through models seemed to accurately transmit its trademark characteristics of classroom style to parents. Although we do not show the tables here, we can report that Bank Street parents consistently mentioned a large number of subjects such as art, drama, and cooking or said that more academic subjects were taught by means of these. Engelmann-Becker parents seemed to have the impression that their children learned language, reading and arithmetic almost exclusively. Bushell parents described their children's classrooms as having the most varied types of classroom activities. They mentioned the way teachers and aides worked together in the classroom more often than the parents of children in the other two models.

Contact and Communication between Parents and Models

In our research so far we have also looked at the different amounts of actual contact and communication between parents and the Follow Through models their children are involved in. This is a different matter from a parent's understanding of classroom activities, which a parent could gain through his child's description. In fact, what we want to say here is that although most Follow Through parents can say something about the classroom, their personal involvement varies considerably among the three models. In this short letter, we will look at two different sorts of parent contact:

(1) the parents' contact with their children's school and classroom, and (2) and parents' awareness of and participation in PAC.

A. Visiting. In our questionnaire, we asked parents the question "How many times have you visited your child's school this year? The answers are summarized according to model in the following way:

Average no. of visits to school, by FT model	
Bushell	4.8 times
E-B	3.3
Bank Street	3.0
Comparison	2.3

From this table we can see that parents from all Follow Through models visited their children's schools more frequently than parents from the Comparison group of schools. We can also see that among Follow Through models, Bushell parents were the most frequent visitors by a considerable margin, followed by E-B parents and then Bank Street parents.

On other tables, not shown here, it seemed that a higher proportion of Bushell parents had seen their child's classroom in action (73%) than Bank Street (65%) or Engelmann-Becker parents (63%). All Follow Through parents had had more exposure to the classroom than parents with children in the comparison schools, however. Only 52% of these parents had seen their child's classroom in action.

So far then, we have seen that Bushell parents seemed to be more in contact with the school and classroom. The principal reason for this, we suspect, is that the Bushell model makes more of an effort to recruit volunteers and employees from among the parents, as the following table shows:

Per cent of parents who worked or volunteered, by Follow Through Model

	Bank Street	Bushell	E-B	Comp.
Worked	6%	54%	20%	0%
Volunteered	17	20	25	0
Neither, or No answer	78	27	55	100
	100%	100%	100%	100%
No. of parents	(36)	(41)	(40)	(19)

B. PAC. When we began looking at the data we gathered last Spring, we saw that parents with children in the different Follow Through models had different amounts of contact with PAC. Bushell parents again seemed to be more involved in PAC than other Follow Through parents. For instance, over three-quarters of Bushell parents who answered the question had even heard of PAC, where slightly less than half of the Bank Street parents had heard of it, and only one-third of the E-B parents knew about the organization. And where about 60% of the Bushell parents had been to PAC meetings, these meetings were attended by about one-third of both E-B and Bank Street parents answering.

It seemed that in the case of the Bushell model, the high degree of contact with the administration through employment and voluntarism combined with an active PAC organization to give the picture of a Follow Through model with strong links to the local community. Parents from both E-B and Bank Street models showed much the same amount of contact with both the school and with PAC. The involvement of the parents from both these models was less than the involvement of the Bushell model parents and greater than that of the parents with children in conventional schools.

Conclusion

It is important to state again at this point that the results reported here are preliminary, and include only a small number of parents. Still, we think that it is worth giving this report circulation because it is much better to say something than to keep absolutely still. The results so far should be pleasing to all involved in Follow Through models in that the three surveyed all seemed to get across an accurate picture of classroom activity to high proportion of the parents involved in all models. In terms of contact and communication between the parents and the school and classroom, it seemed again that all Follow Through models achieved substantially more contact than conventional school systems. The very active policy of the Bushell model to recruit workers and volunteers from the local communities gave this model the most contact of the three Follow Through models surveyed. Perhaps this also helped account for the fact that the Bushell PAC was more active. Still, it is plain that Bank Street and E-B have also achieved some degree of contact in these last two areas. It appears to us simply that the Bushell program has been more effective than Bank Street and Engelmann-Becker in directly involving parents in their program. However, at this time, we do not know whether increased parent involvement is always the same thing as real parents' influence on their children's education.

Appendix B: Report to Teachers

Preliminary Results of the CCEP Teacher Survey

The discussion which follows is a shortened and selective report of some of the first findings of the CCEP teacher and aide surveys. We hope that all teachers and aides who participated in the study will have the opportunity to look at these results and perhaps be helped by the information presented here. We will here look at several aspects of two questions only. These two questions are:

1. The effectiveness of the administration of the different Follow Through models.
2. Teachers' and aides' classroom roles and relationships.

Please remember that as yet we only have our initial results to tell you, and that our study is not the last word on either of these questions. We hope to have more information available late in the Spring to pass on to you.

The Effectiveness of the Administration of the Different Follow Through Models

Each Follow Through model has provisions for training, helping, supervising, and evaluating its teachers and aides. Although we cannot deal directly with the practices of any one school or local Follow Through project, we can report to you those methods that are used more or less uniformly by each of the sponsors. We cannot say out and out that one type of administration is more effective than another, but we can show you our findings and let you evaluate your own situation in light of the knowledge you have gained.

Training

Teachers use many sources in learning how to conduct their classrooms. Our first finding on this score, presented below in Table 1, shows that Follow Through teachers, regardless of the model they were in, reported that they considered the training they got in special seminars before they began their jobs as very important, whereas teachers in conventional schools got much less prior training for their jobs. Table 1 also contains our results from the questions we asked about how important a contribution did other teachers and aides make to the teachers' learning of her job. Those results are explained below:

Table 1: Per cent of Teachers Considering Three Ways of "Learning how to Conduct Your Classroom as 'Very' or 'Quite' Important"

	Bank Street	Bushell	E-B	Comparison
1. Training Sessions prior to the job.	77%	70%	86%	27%
2. Knowledge gained from aides	21%	41%	28%	27%
3. Knowledge from other Teachers	62%	62%	68%	88%
Number of Teachers	39	27	28	22

What Table 1 shows with regard to the role of Colleagues in helping a teacher learn her job (Table 1, items 2 and 3) is first that teachers did not usually consider aides as very important in helping them learn their job. The Bushell program is a slight exception to this generalization. Secondly, other teachers are a strong source of job orientation in all models, but especially so in conventional schools, where all the extra training and services that Follow Through provides are absent. Although our table does not include this finding, perhaps the most important sources of job orientation for all teachers are their personal experiences, especially children's reactions to techniques they try out.

Supervision

Another aspect of effective administration is supervision. Classrooms must be observed, feedback given and ideas exchanged if an educational program that does not originate primarily with the teacher, or group of teachers, is to succeed. We report below our findings on the following three issues related to supervision:

1. The frequency of classroom observations.
2. How often teachers ask for help.
3. What teachers think the administration wants in the classroom.

Engelmann-Becker teachers consistently report the greatest number of observations per month of their class by the project administration, almost eight such visits per month. Bushell and Bank Street teachers report two and three classroom observations per month, respectively. However, it seems that the Bank Street and Bushell teachers are more likely to ask for help that involves classroom observations than are the teachers in the Engelmann-Becker and conventional schools in our study, as is shown in Table 2.

Table 2: Per cent of Teachers in Each model that have requested classroom observation.

Model	Per cent requesting observation
Bank Street	85%
Bushell	72%
Engelmann-Becker	54%
Comparison	55%

What is the project administration looking for when they observe in a classroom? We were interested in teachers' answers to that question, since this gives us a clue as to how the goals of the different Follow Through models are interpreted at the grass roots. Briefly, Engelmann-Becker teachers saw their administrations as looking for four things: (1) 'evidence of children's learning,' (2) 'the enthusiasm the children show in their work,' (3) the teacher's 'following closely a prescribed lesson plan', and (4) the teacher's 'ability to maintain an orderly classroom.' Bank Street teachers also see their administrations as looking strongly for evidences of children's learning and enthusiasm, but they do not believe as strongly as the E-B group that their administrations are looking at their ability to maintain order, or their following closely prescribed lessons. The Bushell teachers are much like the Bank Street group on those issues, except that they perceive that their administrations do in fact look carefully at their ability to maintain an orderly classroom. Looking at the comparison teachers is instructive in this regard. They believe, more than any of the Follow Through groups, that they are being evaluated on their ability to maintain an orderly classroom, and while they still report strong administrative concern over children's learning, their responses show that they feel less pressure to produce evidence of children's learning than any of the teachers in the three Follow Through modesl.

Evaluation; types of records kept and their use

Another aspect of program administration is the way each Follow Through model evaluates the performance of its teachers. We chose first to ask teachers what they knew about the records that were kept of their training, since the type of records kept, and how often they were utilized, tells us about the type of performance monitoring used in each model. Table 4 shows the percent of teachers in each model that reported a particular type of record being used.

Table 4: Per cent of Teachers reporting the Use of Three Types of Records

Type of Record	Bank St.	Bushell	E-B	Comparison
1. General impression of a supervisor	29%	37%	58%	59%
2. Detailed recording of how you handle children and employ materials	13%	44%	54%	18%
3. Videotaping	21%	19%	92%	9%

With regard to how often records are kept about teachers, the Bank Street teachers report an average of slightly over 1 recording per 2 months, whereas Bushell teachers have records made about them ore than once a month, and Engelmann-Becker teachers say records are made about their performance once every two weeks. Comparison teachers report being evaluated on the average of only once or twice a year. Actually, more than half of the Bank Street teachers in our sample indicated that they did not know what records were kept about them.

The types of records kept, and how often observations are made and recorded, are only part of the picture of how an administration monitors the work of the teachers in a program. The amount of feedback a teacher gets, the type of feedback she gets, and the uses the administration makes of its observations we thought would also have an important effect on the coordination and character of a program. Look at Table 5. It shows the percent of teachers in each model who said that the records made about their performance were used in a particular way.

Table 5: Per Cent of Teachers reporting Three Uses of Records

	Bank St.	Bushell	E-B	Comparison
Used to suggest improvement to me	52%	46%	96%	41%
Used to point up deficiencies in my methods	26%	13%	54%	23%
Used to evaluate me and give me a job rating	48%	29%	12%	59%

The table shows that Engelmann-Becker teachers are about twice as likely as any of the other groups of teachers to feel that the records kept about their performance are used to suggest improvements to them, but that they also feel that those same observations and records are used to point up deficiencies in their methods. Bank Street and conventional teachers feel more strongly than E-B or Bushell teachers, that the records kept about them are used to give them a job rating, as well as being used (to a certain extent) to suggest improvements and point out weaknesses. Looking at Tables 4 and 5 together we see that the E-B program achieves most of its coordination through its use of records. Bushell is second in this regard, but the records aren't used to point up deficiencies, while Bank Street and comparison schools do not depend as heavily on records to achieve their coordination.

Summary

To summarize our discussion of project administration, we have reported teachers responses about the following questions.

1. Training
2. Supervision, including observations and what is being looked for.
3. Evaluation, including the types of records kept and how they are used.

Our feeling, after examining the four different styles of administration, is that one cannot say point blank that x program's administration is better than y's. We see effective administration as (1) providing adequate training, support, and supervisory mechanisms; (2) showing a consistent and clear pattern of expectations for teachers' and children's performances; and (3) fostering communication and mutuality between all participants in the educational program. Programs elect different means to achieve their goals, and in the final analysis, only at the local level can judgment be made about the effectiveness of an administration.

Part II: Roles and Relationships of Teachers and Aides

The findings of Part II are based on the questionnaire responses of both teachers and aides. The first question we will address in this section is how certain types of classroom tasks and responsibilities are divided in each model. We will look at teacher's and aides' participation in (1) planning, (2) teaching, and (3) looking after children and classroom.

Planning

The pattern of teacher and aide participation in planning for classroom activities is relatively simple. Here is a condensation of a few consistent results.

i. Bank Street and Bushell teachers often say that planning is a major responsibility of their job, whereas Engelmann-Becker teachers hardly ever talk about planning as part of their job.

ii. Aides in Bank Street and Bushell usually included talking and planning with the teachers' as one of the 4 most important job activities they did, while Engelmann-Becker aides usually did not.

In general, the Engelmann-Becker project people reported much less concern with the activities of planning. Bushell and Bank Street teachers and aides show both a high degree of concern and a great degree of coordination in planning.

Teaching

Teachers. We found that most teachers, not surprisingly, considered teaching of one form or another as their prime responsibility. Bank Street and Bushell teachers conceived of the job mostly in terms of overall supervision of the classroom program. Engelmann-Becker teachers reported that their responsibilities were more related to teaching of specific subjects, like reading and math, rather than an overall supervision and coordination of the classroom academic program.

Aides. In all programs almost all of the aides reported that teaching a small group was a primary part of their job. Bank Street and Engelmann-Becker aides said they also often worked with individual children, but Bushell aides evidently work only with groups. Aides hardly ever work with the whole class in any model.

Looking after children and classroom

Our first finding relating to this aspect of classroom management was that in all programs teachers consider looking after the children and the classroom to be a somewhat more important part of the aides' job than of the teachers' job. The teachers and aides in the Bushell program share this type of work most equally, with E-B next, and Bank Street slightly less equal in this regard. That is, the Bank Street aides report doing more looking after children and classroom and the Bank Street teachers report doing less of this type work than do the teachers and aides in the other programs. But Bank Street, like the other two Follow Through programs, shows a concern for equalizing responsibilities in this area, and the differences between programs are not great.

* * * *

The next section of this report deals with the relationship of teachers to aides in these different models. The first section told some findings we got about how certain classroom jobs were allocated. This section deals with our findings about teachers' and aides' attitudes towards each other and their program. We ask two types of questions here. (1) Do teachers and aides in a model agree with each other; and (2) Do the attitudes of teachers and aides agree with the goals of their model.

Satisfaction with Teacher-Aide Relationship

Both teachers and aides were asked to check how satisfied they were with their relationship to each other on a scale running from "very satisfied" to "very unsatisfied". Here we report the simple averages of the responses, based on a scale of 1 to 5, where 1 represents "very satisfied" and 5 "very dissatisfied":

Satisfaction with T-A Relationship
by Follow Through model

	Bank Street	Bushell	Engelmann-Becker
Teachers	2.2	1.5	1.6
Aides	1.7	1.5	1.0

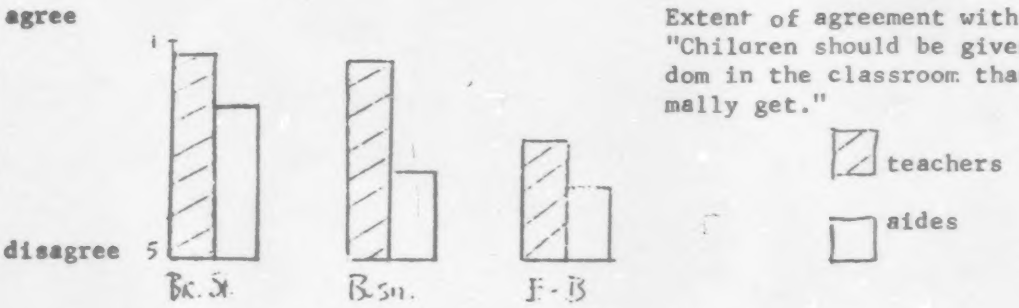
Although there is no satisfactory way of ranking teacher-aide *teams* on satisfaction from this simplified table, we can report that Bushell and E-B teachers seem somewhat more satisfied with their aides than Bank Street teachers. From the point of view of the aides, E-B aides reported a high level of satisfaction on their relationship with teachers, Bushell aides less satisfaction, and Bank Street aides least.

Mutuality in Teaching Methods

We have already reported what teachers and aides in each model say they do in the classroom. Our questionnaires also contained questions which tried to get at the extent to which teachers and aides cooperated with each other. Aside from mutuality in planning for classroom activities, which we have already discussed, another important indicator of cooperation is *agreement on teaching methods*. Our questionnaires asked both teachers and aides to tell us whether or not the teacher(s) and aide(s) in their classroom "usually use the same methods for teaching". Here, E-B teachers and aides most often reported using the same methods for teaching. Bank Street was second, and Bushell teachers and aides third and lowest on the extent of agreement on teaching methods.

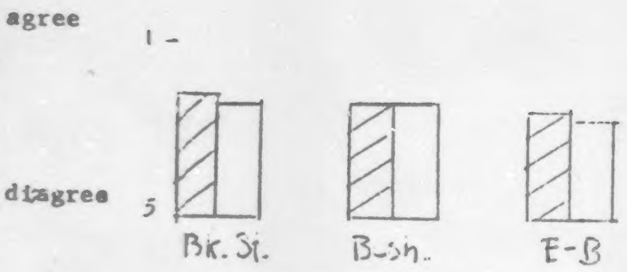
Norms on Childrens' Autonomy

One of the basic purposes of the CCEP study as a whole was to look at the amount of independence children had in each model's classroom environment. In our teacher and aide questionnaires we had a number of items which tried to determine teachers and aides' attitudes toward student autonomy. The first item was whether teachers and aides agreed with the proposition that "Children should be given more freedom in the classroom than they normally get", the second, whether they agreed that "When given a choice of activity pupils generally select what is best for them." Here we use two graphs to show how much the different groups agreed or disagreed with these ideas. On the question of childrens' freedom in the classroom, the teacher and aide groups looked like this on a graph:



Extent of agreement with the idea "Children should be given more freedom in the classroom than they normally get."

On the issue of whether pupils best selected their own classroom activity, teachers and aides seemed nearly in agreement. We grouped teachers and aides as follows:



Extent of agreement with the idea " When given a choice of activity, pupils generally select what is best for them."

▨ teachers

☐ aides

If we look at these two graphs together, we could make the general statement that Bank Street teachers and aides seemed to be the most positive on these two issues. This could be broadly interpreted to mean that Bank Street classroom personnel placed a higher value on student autonomy than teachers and aides from the other two models. Whether these attitudes actually result in classroom practice which allows a Bank Street student more autonomy is an issue for those on our research project who are evaluating videotapes, but the attitudes are there. E-B teachers and aides seemed least positive towards these two questions on student autonomy, while Bushell classroom personnel were in between Bank Street and E-B. But it should be pointed out that the E-B teachers and aides did not strongly disagree with these ideas. The main trend of E-B responses was "mild disagreement". They contrasted with Bank Street teachers and aides who tended to be in mild to strong agreement with these ideas.

Appendix C: Report to Aides

Introduction: First Results of the CCEP Aide Survey

The report which follows is a first look at some of the findings of the CCEP Aide Survey. We hope that all aides who participated in the study will be able to look at these results and perhaps be helped by them. In this report we will look at several aspects of the following two questions.

1. How effective are the administrations of the different Follow Through models we looked at - Bank Street, Bushell, and Engelmann-Becker (E-B).
2. Aides and teachers relationships and attitudes.

Please remember that at this point we only have our first results to tell you, and that our study is not the last word on either of these questions. We hope to be able to tell you more late in the Spring.

Training

A. Formal Training

One of the main interests of our survey of Follow Through aides was to try to get a picture of how well each Follow Through model put its ideas into practice. Training and orientation of aides was clearly an important part of making the educational theories work for each model. One question that seemed worth asking was this: what parts of the formal training did aides consider valuable in helping them learn their jobs? Here we report the aides' opinions on two aspects of formal training: the training sessions before aides started work, and the assistance of supervisors. We will not reproduce the actual tables or figures, but will just describe the results we found.

In terms of the training sessions before the actual teaching started, nearly all the aides in the E-B program saw these as useful. About two-thirds of the Bank Street aides saw the sessions as important, and slightly over one-half of the Bushell aides had the same opinion. As for the advice and help of supervisors, E-B aides were almost unanimous in saying these people were helpful, Bushell aides were the next most positive, followed by aides from Bank Street.

To sum it up, it seemed that E-B aides thought the two formal training methods we have just looked at were important to them in learning their job. Nearly all of the E-B aides thought that both the training sessions before work and supervision during work were important in helping them. Aides in the other two models were not as positive about formal methods of teaching them their jobs as the E-B aides. If we compare the Bank Street and Bushell aides, the training sessions were more important to Bank Street than Bushell aides, while the help of supervisors was more important to Bushell aides.

B. Informal Training

The next question we report on here is a matter of personal relations. How important were (1) teachers, and (2) other aides, in helping aides learn their jobs? These relationships were worth knowing because they are certainly just as important as the formal training methods in teaching aides their jobs. In fact, we might even find that the relationship between teacher and aide was the most important thing in teaching an aide her job.

When we looked at how important teachers had been to aides in job orientation, it seemed that Bank Street and Bushell aides were almost unanimous in saying that teachers were important in helping them. About three-fourths of the E-B aides felt the same way. Other aides were seen as important by 60% of the Bushell aides, 46% of the E-B aides and one-third of the Bank Street aides.

We can say two things about these figures. The first is that for all the Follow Through models surveyed, teachers were more important than fellow aides in teaching aides their jobs. The second thing we can say is that each model showed different amounts of reliance on teachers and aides in teaching aides their jobs. For instance, for Bank Street aides, teachers were much more important than fellow aides in teaching aides their jobs. Bushell aides agreed with Bank Street aides on the importance of teachers, but thought other aides were about twice as important as the Bank Street aides thought they were in helping them learn their jobs. In fact, Bushell aides seemed to have relied on each other much more than aides from either of the other two models. E-B aides thought teachers less important than did the aides in the other two models, but thought the other aides more important in helping them than the Bank Street aides had.

To put all of this in another way (and to oversimplify things) we could say that Bank Street aides relied heavily on teachers to learn their jobs, Bushell aides relied quite heavily on both teachers and aides, and E-B aides relied somewhat less on teachers than aides in the other models had, and were in between Bank Street and Bushell on the importance of aides.

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To sum up our findings on aides' training then, we find a very high proportion of E-B aides saying that training sessions and supervisors were important, seeing teachers as somewhat less important than aides in other models said they were. About 46% of the E-B aides saw their fellow aides as important to their training. For Bank Street, many aides saw the training sessions as important. Supervisors seemed less important for these aides in the other two models. Teachers were seen as important in helping aides to learn their jobs, but relatively few Bank Street aides saw their fellow aides as important.

Bushell aides were about evenly divided as to whether the training sessions were important in their training, but a solid majority thought supervisors were important in this respect. Bushell aides were nearly unanimous in saying teachers were important, and found their fellow aides considerably more important than aides in the other two models had.

Supervision

During our interviews and visits last Spring, we were impressed with the amount of effort that all Follow Through models put into supervising and helping their teachers and aides. We also saw that the models themselves encouraged teachers and aides to make use of the sponsors' resources for evaluation and advice. Like training, these attempts to encourage communication between the administration and the aides in each model was a way of making sure that the ideas of classroom teaching so important to each model were actually being put into effect. Here we report on three aspects of supervision: the number of visits to the classroom by supervisors, the extent to which aides themselves asked for help, and who the aides thought they were supposed to ask for help.

In terms of the number of classroom observations per month by Follow Through advisors, E-B aides reported an average of 3½ visits per month, while Bank Street and Engelmann-Becker aides both reported just over 2 visits per month. It also seemed that E-B aides requested that their work be observed more frequently than aides from the other two models. This is shown in the following table:

Per cent of aides asking for
observation, by model

Bank St	Bushell	E-B
18%	28%	49%

We now turn to the question of who the aides thought they were supposed to rely on for help and advice in performing their jobs. Here it seemed that about one-third of all aides in the three models thought they were supposed to rely on teachers in their own classrooms. However, E-B aides were considerably more inclined to also mention local Follow Through staff, such as resource teachers and supervisors, as people who would help them. Bushell aides were less inclined to mention this sort of personnel, and Bank Street aides were least inclined to mention local Follow Through staff members.

To sum up, when we look at the pattern of classroom observation frequency, the frequency of aides' asking for observations, and aides' ideas of who was supposed to help them in their jobs, perhaps we can see a pattern. This is that E-B aides were observed the most, and related most strongly to their local Follow Through administrative structure as a source of support. It seemed therefore, that E-B had the strongest link between the administration and classroom practice, followed by Bushell. By our limited criteria, Bank Street aides seemed to be less frequently contacted by their supervisors and somewhat less inclined to make contact with the other aides. This suggests that either the administration did not emphasize or supervise its idea of classroom practice to Bank Street aides very much, or it did this in ways we have not investigated here. Perhaps most supervision was done through the teacher, as our discussion of agreement on values seems to suggest in the next section (p.4).

What the Model wants: Aides Ideas

The last issue we will report on in this letter is what aides think their model wants. What are the classroom observers and supervisors looking for? What do the aides think? This question, like the others reported on here, was intended to get an idea of how well the theory of the model was being implemented. Most of the aides in the three models had a fairly good grasp of what the models actually stress. We report on two values here. First, we report aides' responses as to how important they thought keeping order in the classroom was to their supervisors and administration. Second, we show how important aides thought closely following a prescribed curriculum was to their supervisors and administrations.

A. Keeping Order

In the first case, the percentages of aides in each model who thought keeping order was very important to their administrations were as follows:

Per cent of aides feeling "keeping order" important to supervisors

Bank Street	Bushell	Engelmann-Becker
13%	53%	53%

B. Following Curriculum

As for how important aides thought closely following a prescribed curriculum was, the results look like this:

Per cent of aides feeling closely followed curriculum important to supervisors

Bank Street	Bushell	Engelmann-Becker
15%	43%	63%

If we look at these two simple tables, we can see a pattern, whereby Bank Street's relatively open-ended approach to the classroom environment and curriculum is accurately reflected by the Bank Street aides who think their Follow Through model is less concerned with keeping order in the classroom and closely following a curriculum. For E-B and Bushell, the group teaching techniques of both these programs are perhaps reflected in the importance of order for aides in these models. In terms of following prepared materials, the relatively higher proportion of these materials in E-B classrooms was consistent with aides' responses. The slightly less prescribed Bushell classroom corresponded with aides seeing prescription as somewhat less important than E-B.

Conclusion

Trying to summarize this first part of our report would be very hard and might also be somewhat misleading. The results we reported in this letter are only a small part of the information we have about each model. Certainly the relationships among questions we asked will become more complex once we begin our analysis in earnest. Perhaps the best way to think of the whole report is to think about one basic theory, which might explain the results we have discussed here. This is simply that the aides' attitudes we have examined fit closely with the design of each model.

In the case of Bank Street, we might say that the aides' idea that their supervisors did not think that classroom order or a highly structured curriculum were that important is an accurate reflection of Bank Street's rather open approach to education, where children's learning is more apt to be determined by the children's own interests. This would also help explain why teachers are so much more important than other aides to these Bank Street aides in learning their jobs, because each classroom had different children, and the teacher is given the responsibility of interpreting the individual needs of children and structuring the classroom accordingly. It would also seem true that where classrooms are more individualized, teachers who know the children will tend to be more important to aides than supervisors who usually do not. This might also explain why Bank Street aides contacted the administration less for observation - they perhaps relied on the teacher as their observer. All of this says simply that Bank Street aides seem to reflect values, conduct classroom relationships and view their training in ways which reflect the priorities of the Bank Street Program. From the point of view of the sponsor, these aides should probably be considered well trained.

The E-B aides also reflect the characteristics of their model. Their high regard for administrative help during training and their reliance on Follow Through staff as well as the teacher to help them do their job is attributable to the consistent feedback on performance provided in the E-B program. Bushell aides are perhaps most notable for their relatively close relationship with other aides as well as teachers, perhaps reflecting the Bushell emphasis on teachers and aides as teams. As we will see in Part Two, this effect carries over into the high degree of mutual planning between teachers and aides in the Bushell program.

Part II: Roles and Relationships of Teachers and Aides

The findings of Part II are based on the questionnaire responses of both teachers *and* aides. The first question we will address in this section is how certain types of classroom tasks and responsibilities are divided in each model. We will look at teacher's and aides' participation in (1) planning, (2) teaching, and (3) looking after children and classroom.

Planning

The pattern of teacher and aide participation in planning for classroom activities is relatively simple. Here is a condensation of a few consistent results.

i. Bank Street and Bushell teachers often say that planning is a major responsibility of their job, whereas Engelmann-Becker teachers hardly ever talk about planning as part of their job.

ii. Aides in Bank Street and Bushell usually included talking and planning with the teachers' as one of the 4 most important job activities they did, while Engelmann-Becker aides usually did not.

In general, the Engelmann-Becker project people reported much less concern with the activities of planning. Bushell and Bank Street teachers and aides show both a high degree of concern and a great degree of coordination in planning.

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Satisfaction with T-A Relationship
by Follow Through model

	Bank Street	Bushell	Engelmann-Becker
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Although there is no satisfactory way of ranking teacher-aide *teams* on satisfaction from this simplified table, we can report that Bushell and E-B teachers seem somewhat more satisfied with their aides than Bank Street teachers. From the point of view of the aides, E-B aides reported a high level of satisfaction on their relationship with teachers, Bushell aides less satisfaction, and Bank Street aides least.

Mutuality in Teaching Methods

We have already reported what teachers and aides in each model say they do in the classroom. Our questionnaires also contained questions which tried to get at the extent to which teachers and aides cooperated with each other. Aside from mutuality in planning for classroom activities, which we have already discussed, another important indicator of cooperation is *agreement on teaching methods*. Our questionnaires asked both teachers and aides to tell us whether or not the teacher(s) and aide(s) in their classroom "usually use the same methods for teaching". Here, E-B teachers and aides most often reported using the same methods for teaching. Bank Street was second, and Bushell teachers and aides third and lowest on the extent of agreement on teaching methods.

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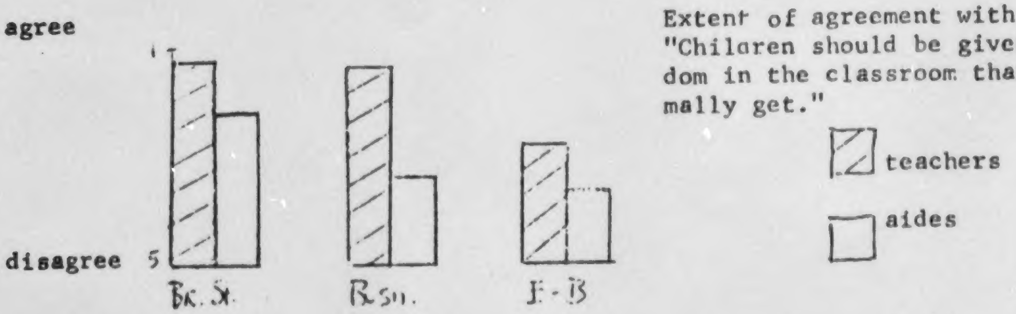
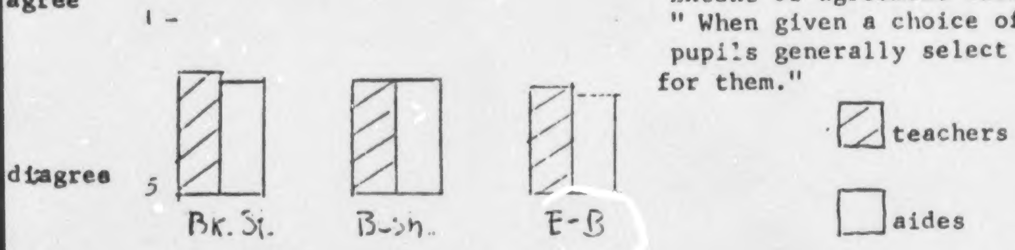
One of the basic purposes of the CCEP study as a whole was to look at the amount of independence children had in each model's classroom environment. In our teacher and aide questionnaires we had a number of items which tried to determine teachers and aides' attitudes toward student autonomy. The first item was whether teachers and aides agreed with the proposition that "Children should be given more freedom in the classroom than they normally get", the second, whether they agreed that "When given a choice of activity pupils generally select what is best for them." Here we use two graphs to show how much the different groups agreed or disagreed with these ideas. On the question of childrens' freedom in the classroom, the teacher and aide groups looked like this on a graph:



Extent of agreement with the idea "Children should be given more freedom in the classroom than they normally get."

On the issue of whether pupils best selected their own classroom activity, teachers and aides seemed nearly in agreement. We grouped teachers and aides as follows:



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If we look at these two graphs together, we could make the general statement that Bank Street teachers and aides seemed to be the most positive on these two issues. This could be broadly interpreted to mean that Bank Street classroom personnel placed a higher value on student autonomy than teachers and aides from the other two models. Whether these attitudes actually result in classroom practice which allows a Bank Street student more autonomy is an issue for those on our research project who are evaluating videotapes, but the attitudes are there. E-B teachers and aides seemed least positive towards these two questions on student autonomy, while Bushell classroom personnel were in between Bank Street and E-B. But it should be pointed out that the E-B teachers and aides did not strongly disagree with these ideas. The main trend of E-B responses was "mild disagreement". They contrasted with Bank Street teachers and aides who tended to be in mild to strong agreement with these ideas.

Chapter 7: Research Procedure in the Pupil Role Interview Study.

Joseph B. Roberts
Nancy Gropper
Leonard Huber
Carole Oligario

This Spring, CCEP is interviewing 480 Follow Through and comparison 3rd grade pupils in 12 geographic sites. The Pupil Role Interview has been developed collaboratively by the authors and Leland Van den Daele, and is based on an application of his scheme of the developmental stage of preferential judgment, to the contents of the pupil's learning environment. The Final Report on this Pupil Role Interview study is to be submitted September 15, 1972. CCEP's Third and Fourth Progress Report contain extensive discussions of the rationale of the interview and its coding system, as these had progressed at those times. Our current report deals with four aspects of the research procedure that we are using to measure pupil role development: (1) the design of the current study, (2) data and instrumentation, (3) analysis, and (4) the method for selecting the sample for the study.

The Research Design

The design of the study results from our consideration of the constructs possibly accounting for interview performance. From a cognitive developmental view of the pupil role, stages of development arise out of the interactional experience between a pupil and the world of the pupil's teachers, classmates, materials, rules in the classroom, family, and self, as they influence his or her sources of preferential judgment in the classroom. The meaning of this interactional experience for a child may vary according to the pupil's age, environment at home and in school, sex-role match with teachers, achievement, and developmental level of general ego ideal. Therefore, these variables suggest constructs possibly accounting for interview performance indicating stages of preferential norms as learner, which designate pupil role development.

In Robert's dissertation proposal last Fall, he predicted which programs -- Engelmann-Becker, Bushell, or Bank Street -- would have pupils with higher preferential judgments. This prediction was based on Tables 1, 2, 3, and 4 relating to the definition of autonomy in our Second Progress Report. Since that report, CCEP has obtained much more data relating to these programs and has related autonomy to other parameters of self's thought and action in classroom settings: heteronomy, objectivity, and integration. It no longer seems possible to make simple predictions about the effects of different programs on developmental stage, and thus we are concerning ourselves all the more with the question of the match. We are interested in the optimal match or mismatch between pupil, teacher, and parent preferential judgments, and in the consequences of different descrepancies between the pupil's action preferences and the action possibilities of one or another environment. This data should help explain stage development and fixation at a particular stage in various Follow Through and comparison classrooms.

We anticipate developing a Teacher and a Parent form of The Pupil Role Interview in 1972-73. The Spring 1972 study is intended as a base for future, more comprehensive studies, and is designed especially to provide pupil role data on children in the three Follow Through programs CCEP has studied intensively, together with pupil role data on children in the Florida Program and comparison classrooms.

We are obtaining this spring the following data on all 480 subjects:

(1) pupil role interview performance,

(2) parents' self-reports on occupations, to be stratified by Hollingshead's occupational index,

(3) sex-role match with teachers, and

(4) location of classroom in one or another Follow Through or comparison program.

In addition, we will

(5) receive S.R.I. achievement data on Follow Through and comparison pupils in two locations.

Though we have attempted to control for age by restricting the sample to 3rd grade children, we are monitoring this by collecting the children's birthdates.

This study seeks to answer the following questions:

1. What is the relationship between the learning environments in various Follow Through and comparison programs and the principles by which pupils select their preferential norms?

2. What is the relationship between the structure and the content of pupils' preferential judgments?

3. What is the relationship between school and non-school preferential judgments, or learner norms and general ego ideal?

4. What is the relationship between the sex-role match of pupil and teacher and pupil preferential norms as learner?

5. What is the relationship between parents' occupations and pupil preferential norms as learner?

6. What is the relationship between pupil achievement test scores and preferential norms as learner.

We hypothesize that the relationship of learner level differences to school programs will be a function of the within-classroom variation of settings, affording pupils diverse opportunities for matching their preferential judgments to the learning environment.

In regard to the structure and the content of preferential norms, we hypothesize that the higher the stage level of these norms, the more differentiated the pupil's way of reasoning becomes, and the more differentiation is reflected in the content of responses.

We hypothesize that the sex-role match of pupil and teacher will be related to preferential norms as learner. The pupil categorizes him/herself according to sex gender, and then tends to imitate competent models of that gender with whom he/she interacts, in the early stages of ego-norm development.

We hypothesize that pupil achievement test scores will be related to preferential norms as learner, since both contain a verbal component relating child to adult in school.

We hypothesize that school preferential judgments will be correlated with non-school preferential judgments, since pupils will tend to apply their general judgment to diverse content areas.

These hypotheses will be tested with the use of the research design presented below. (See following page)

Data and Instrumentation

In the previous section of this report, we have identified our independent variables as classroom setting, pupil achievement, home setting, and the sex-role match between pupil and teacher. Our dependent variables have been identified as pupil ego-norms as learner and general ego-ideals. Now, we will (1) operationally define each of the variables, (2) report the circumstances under which interviewer, coder, and data reliability are being established, and (3) describe procedural problems in the collection of the data.

1971-72 RESEARCH DESIGN

Classroom Settings in 8 Follow - Through Sites and 4 Comparison Schools

Pupils'	
Preferential School Norms	Non-School Norms
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12

Engelmann-Becker		Bushell		Florida		Bank Street	
Tupelo Comp.	E.St.Louis Comp.	Trenton	Phil.	Richmond	Phil.	Brooklyn Comp.	Tusk.
Socio-economic status of parents							
Sex-role match between pupil and teacher							
Achievement test scores							

Operational Definitions

We will limit our operational definition of classroom setting in this pilot study to the descriptions of the experimental programs being studied and to the content of responses to the Pupil Role Interview, noting the fact that we have not conducted observations in classrooms. The content of the responses will be coded in two ways, by induced catetories and by using appropriate categories from BESIS (see Chapter 2) for selected questions from the Pupil Role Interview.

We will operationally define achievement as the scores on achievement tests administered to second grade Follow Through and non-Follow Through pupils in Macon County, Alabama and Tupelo, Mississippi during the Spring of 1971, these pupils presently being part of our sample of third grade pupils. Male and female groups from this grade will be equated through a random selection of children with high, medium and low achievement test scores. Furthermore, an estimate of these children's mental ages will be obtained by adding their second grade achievement test scores to the child's age upon entering the first grade and by dividing the sum of these figures by the chronological age of the child at the time of taking the achievement test.

In connection with home setting, we operationally define that independent variable through the assignment of children whose parents fall in one of the social-class groups as indicated by Hollingshead's occupational index of socio-economic status. We have added to this group a category for the unemployed. We are getting information about parents' occupation from the parents' themselves on the parent consent slips to interview their child. At present, we are dissatisfied with current indexes of SES, because they probably fail to differentiate parents in the same social class group who may have different life styles and different preferential norms. Thus, we see the need to develop a Parent Role Interview, so that we may make these distinctions and study the research questions of the match among parents, pupils and teachers.

In order to define operationally the sex-role match of pupil and teacher, we make use of information gathered by the interviewer on the Face Sheet, which will be attached to the transcript of a pupil's interview. On this sheet, we ask for information concerning the sex of his present teachers. We also ask, "Did the child ever have a male teacher? Yes___No___. If yes, what grade(s)_____." With this information, we match the sex of the teacher with that of the pupil, also indicated on the Face Sheet.

We have operationally defined our independent variables, and now, we will operationally define our two dependent variables: ego-norms as learners and ego ideal of pupils. Both of these variables are defined through the use of the Pupil Role Interview, the first part of the interview relating to the pupil's preferential judgment about their teachers, their classmates, and materials in the classroom, their rules in the classroom, and their family helping them to learn, and the second part dealing with Van den Daele's questions about the pupil's preferential judgments relating to future occupations and social relations. We code the stages of the responses to the questions in the two parts of the interview through the use of Van den Daele's Manual for the Evaluation of Preferential Judgment and Ego Development, submitted as a special appendix to the report.

We realize that to speak of the pupils' ego-norms and ego-ideals as "dependent variables" does not seem to recognize the question of the match. However, in our analysis of the content of the interview responses, for example children's satisfaction or dissatisfaction with features of the learning environment, we can treat the environment and the pupils' ego-norms and ideals as variables interacting to produce a match or mis-match. Nordt and Huber, independently, have started to analyze the April, 1972 interviews of children observed with BORIS and IRIS (see Chapter 3 and 4) to try out the possibilities of content analysis.

Establishing Coder Reliability

The most recent procedure for establishing coder reliability call for all prospective coders to rate 36 identical items comprising 3 different interviews conducted this spring. Of the 5 potential coders, 4 attained reliability; the fifth coder did not and will be excluded from coding for the time being.

All the four coders who attained reliability rated 18 of the 36 items identically. Three of the four coders rated 12 more items identically. Thus, at least three of four coders agreed on 83% of the items on four of the remaining six items, pairs of coders agreed, i.e., two coders rated the item one way and two another. On only two items were three different ratings reported.

Furthermore, in constructing modal ratings for the two sections of the interview -- pupil norms and ego norms -- 3 out of 4 interviewers agreed in all three cases.

Data Reliability and Interview Criteria

In order to establish data reliability, the research team will reinterview approximately 10% of the sample, a week after the initial interview, from the Bank Street site in Brooklyn, New York, which was selected at random. The children will be randomly assigned to the interviewers, and the order of presentation will also be randomly assigned to the children. In short, parts one and two of the interview schedule will be randomly presented in that order to 20 children, and parts two and one will be randomly presented in that order to the other 20 children. If we obtain the same or similar results and there is thus a lack of error of measurement, then we will assume that we have data reliability as well as interviewer reliability.

In order to meet the general requirements for the position of interviewer, we have consistently used the following criteria for hiring:

Personal Attributes

1. A recommendation from a member of a college faculty -- or indication of academic responsibility ;
2. An expression of confidence and concern -- an indication of intrinsic motivation ;
3. Previous experience interviewing or teaching children -- an indication of ability to take the view of others ;
4. Spontaneous response to the Pupil Role Interview -- an indication of directness in communication ;
5. Answers to the question, "Why would you like to be an interviewer in The Pupil Role Study?" -- an indication of stages of reasoning;

Group Attributes

6. All of the above personal attributes being equal among a group of candidates, choose on the basis of the match between interviewer and pupil in regard to sex and race, when possible; and

Time Available

7. Free time to do the interviewing and to participate in an intensive two day training session.

Also, in many cases, students obtain college credit on the basis of their work with us, this being an indication of their objective interest in the Pupil Role research questions and precautions to avoid revealing the names of parents, pupils, programs, schools, and teachers. Our policy for hiring interviewers capitalizes on students' motivations for a novel pupil-adult experience, for competency in finding out what pupils think of themselves as learners, and for academic approval from their teachers. All of this is expected to contribute to interviewer reliability.

Our Procedure For Training Interviewers

Our consistent training procedure should also contribute to interviewer reliability. In the data collection sites in the north, we had the trainees come to Teachers College, where our research team trained them with the additional use of video-tapes and where we individually gained experience to conduct intensive, interviewer training sessions in the mid-west and in the south. The training consists of four steps:

1. Explaining the Interviewer Manuals -- we have developed two complementary manuals that can aid interviewers. One manual explains the purpose of the interview and techniques to be used for determining developmental stages and content areas. The second manual explains other aspects of the interview process: selecting the time of the interview, facilitating communication between the interviewer and the child, and transcribing the interview.

2. Studying Annotated and Unannotated Transcribed Interviews -- the annotated transcript done by Huber illustrates portions of the interview that have been carefully examined for the interviewer's method, with notes about probing and phrasing dilemmas and the right side of each page, opposite specific questions. The annotated transcript provides interviewers with an opportunity to differentiate insufficient and incorrect probing and questioning from sufficient and correct probing and questioning.

3. Studying a video-tape of Huber, Gropper, and Oligario Interviewing different children -- the video-tape edited by Huber provides interviewers

with an opportunity to differentiate the strengths from the weaknesses of interview technique and illustrates what CCEP expects from them.

4. Role-Playing -- Research assistants and students alternately took the roles of the interviewer and the pupil, receiving and giving adaptive, task related feedback and evaluation, and repeating this process, when necessary.

Our consistent practice in giving each interviewer weekly feedback on probing technique should also contribute to reliability. We especially note the interviewer's technique in asking the following kinds of questions, when the child's responses seem unclear or mixed in terms of the developmental stage or content area:

1. Questions that place two things the child has said in opposition to each other.

2. Ones that ask the child to generate rules.

3. One that ask the child if everyone feels the same way he or she does.

4. Ones that ask the child to explain what is meant by a categorical word that he or she uses (i.e., fun, work, nice, etc.).

Analysis

In the last section, we have discussed our independent and dependent variables and the instruments which operationally define them. In this section, Roberts will discuss our plans for analyzing the Spring data.

The analysis of the data results from our exploratory hypotheses stated in the first section of this report dealing with our research design. For the present discussion we will use the exploratory data we collected by Sara Lipson and Carole Oligario from second grade children observed with BORIS and IRIS.

This data is presented below in order to note briefly the variability of preferential pupil role stages and to illustrate some of the kinds of analyses that we will do in this pilot study. Of course we are highly interested in the relationship between the interview scores shown below and the involvement scores attained for the same children by Greene and Logan (see Chapter 4). However, we have only started our analysis of this and are not yet prepared to venture an interpretation. In any event this sample of 21 children can in no way be used to make inferences about their programs.

While we have indicated above the ambiguity of the hypothesis, nevertheless we will hypothesize that there will be a relationship between classrooms in Project Follow Through's experimental models and whole interview pupil role modal response. Table 1 presented below illustrates the kind of data that we will use to test this hypothesis, with an analysis of variance.

Table 1: Percent Distribution of S's Modal Level By Program

Level	Bank Street	Univ. of Oregon	Univ. of Kansas
N:	6	8	7
1			
2			
3			
4	16 2/3		
5	50	37½	14 2/7
6	16 2/3	37½	57 1/7
7	16 2/3	12½	28 4/7
8		12½	
9			
10			
Mean:	5.3	6	6.1
Standard Deviation:	.9428	1	.6389

In addition to testing the relationship between classrooms in different experimental programs and whole interview pupil role modal response, we are also considering testing the relationship between classrooms in the same experimental program and children's evaluation of teachers and the relationship between the geographical location of classrooms in some and different experimental programs and whole interview pupil role modal response.

In regard to the developmental aspect of preferential pupil role judgments, we noted age trends relating to these in our Fourth Progress Report. Now, we will note the sequentiality of these judgments in Table 2 presented below For example, in this table consider the distribution of responses for subjects whose modal level is 4. As one can see, their non-modal response cluster in adjacent levels rather than in pupil role norms are developmental. This is a considerable improvement over our analysis of the June, 1971 class with an earlier version of the coding criteria!

Table 2: Percent Distribution of Responses of S's Classified by Modal Response
Modal Level of S's

Distribution of Responses	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4				56	11	4				
5				31	58	28	5			
6				13	26	51	18	18		
7					5	16	52	27		
8						1	18	55		
9							7			
10										

In our Fourth Progress Report, we discussed an analysis of the relationship between the age of pupils and the distribution of responses . In this pilot study, we plan to test the relationship between different programs and the distribution of responses, as illustrated in Table 3 below.

Table 3

Percent Distribution of Response Units By Program

Program:	Bank St.	Univ. of Oregon	Univ. of Kansas
Level:			
1			
2			
3			
4	14		6
5	35	34	21
6	32	34	38
7	11	24	27
8	5	7	6
9	3		2
10			
$\bar{X}$	5.6845	6.0494	6.1243
S	1.197	0.9339	1.0745

Figure 1 (below) will provide us with evidence to test our exploratory hypothesis that school related preferential norms will be correlated with non-school related preferential judgments. In our exploratory study of 21 second grade children, we obtained r= 0.899 for 6 Bank Street pupils, r= 0.810 for 8 Engelmann-Becker pupils, and r= 0.789 for 7 Bushell pupils.

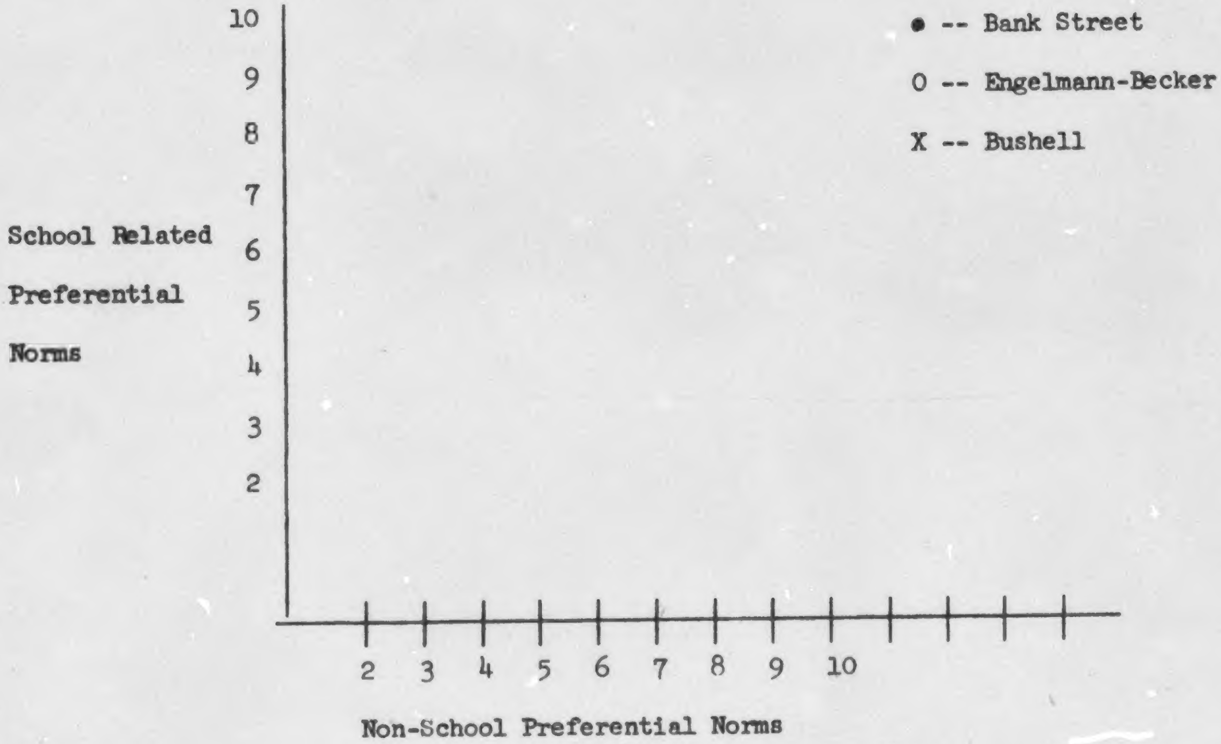

Figure 1 -- A Scatter Diagram of S's Non-School and School Modal Levels

Table 4 will provide us with evidence to test our exploratory hypothesis that there will be a relationship between the sex-role match of pupil and teacher and pupil role development.

Table 4*

Percent Distribution of S's Modal Level By Pupil and Teacher Sex-Role Match

Level	Boys with Men	Girls with Men	Boys with Women	Girls with Women
1				
2				
3				
4				
5				
6				

7

8

9

10

* We will present a table for each of the 12 sites and pool this information independent of programs.

Figure 2 will provide us with evidence to test our exploratory hypothesis that achievement test scores will be related to preferential judgements.

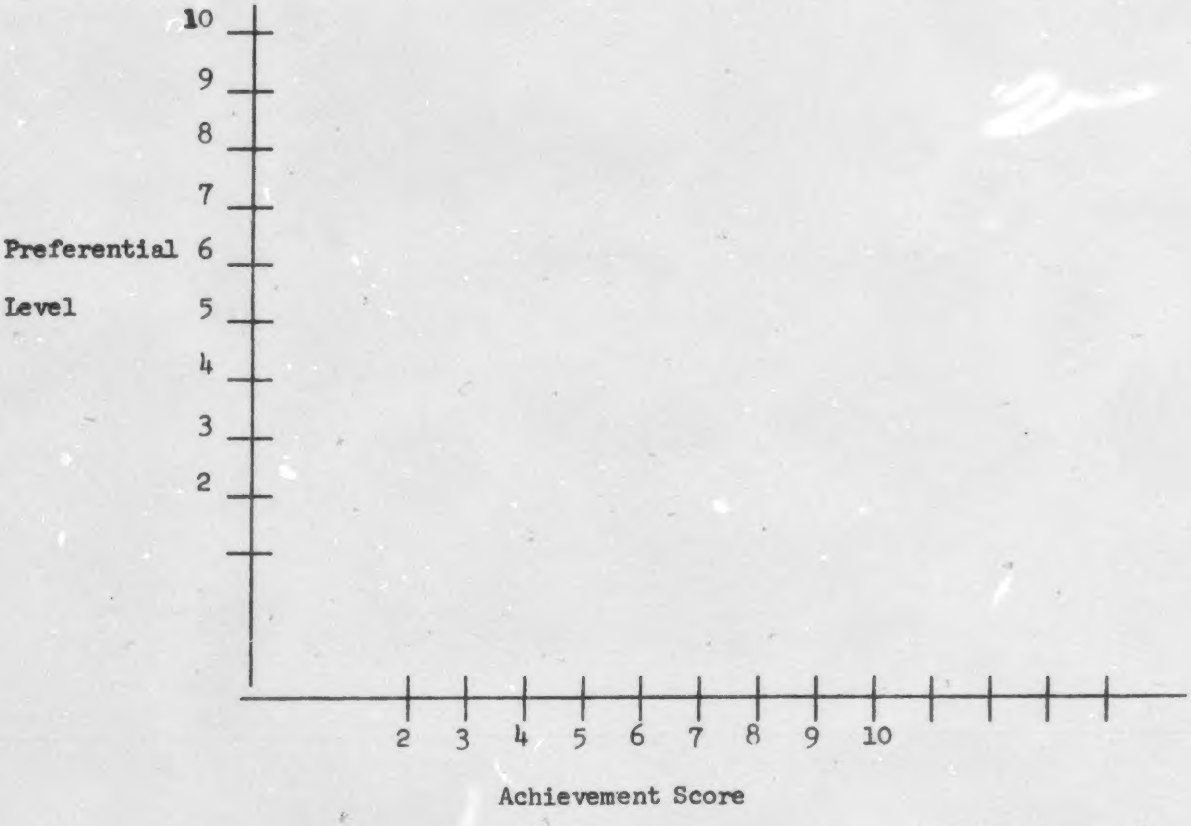

Figure 2 -- A Scatter Diagram of S's Preferential Modal Level Versus Achievement Scores*

* This information is available only in the Macon County, Alabama and Tupelo, Mississippi sites.

Figure 3 will provide us with evidence to test our exploratory hypothesis that pupil socio-economic status will be related to preferential pupil role judgments.

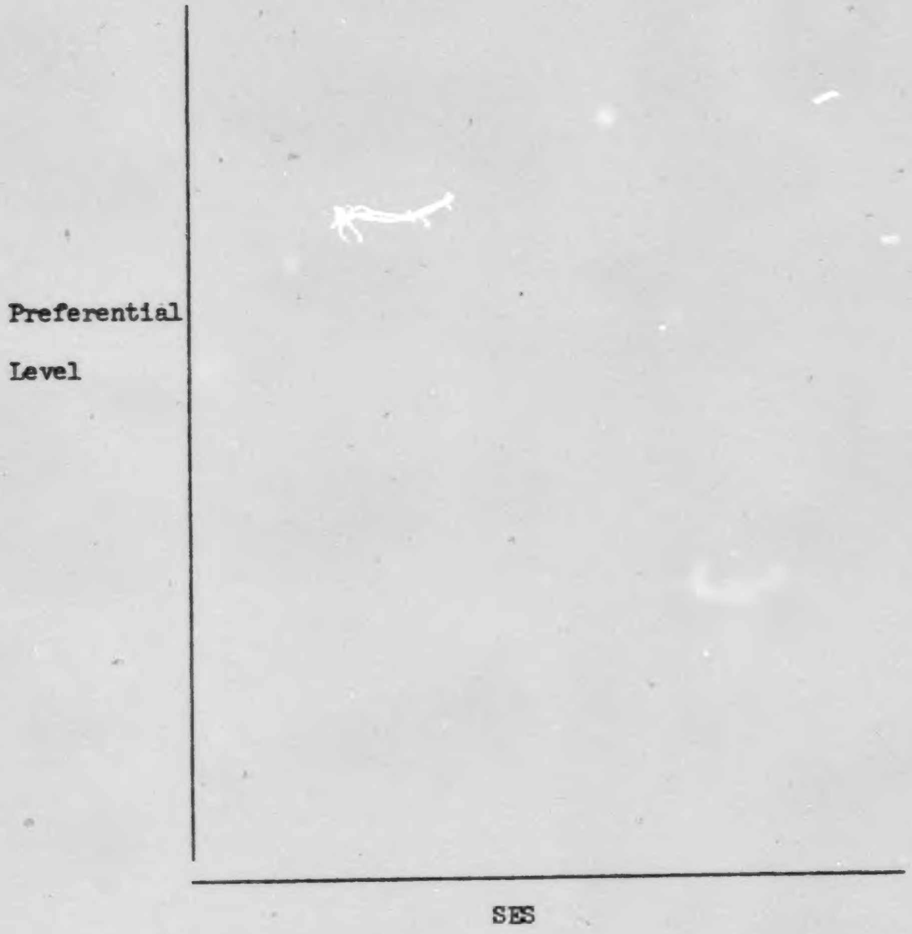

Figure 3 -- A Scatter Diagram of S's Modal Level Versus SES.*

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* For program and independent of program.

Procedure for Selecting the Sample

Nancy Gropper

THE SAMPLE:

The selection of 480 subjects for the Pupil Role Interview study, includes 40 children from 8 Follow Through sites, with 40 subjects selected from 4 comparison sites, as indicated below:

University of Florida:	Richmond, Virginia	40
	Philadelphia, Pa.	40
Bank Street:	Brooklyn, N.Y. with Comparison site	80
	Tuskegee, Ala. with Comparison site	80
University of Oregon:	Tupelo, Miss. with Comparison site	80
	E. St. Louis, Ill. with Comparison site	80
University of Kansas:	Philadelphia, Pa.	40
	Trenton, N.J.	40

MEANS OF SELECTING THE SAMPLE:

The first means of selecting the 480 subjects has been on the basis of return parental permission slips, giving us permission to conduct the interviews with individual children. We are selecting subjects from among those whose parents positively responded to such requests.

The second means of selecting the sample, in sites where more than the necessary number of positive responses are received, is by random selection of an equal number of male and female subjects.

A third means of selecting the sample has been employed in Tuskegee and Tupelo. In these two sites, SECOND grade achievement test scores are available from Stanford Research Institute. We have therefore selected as many subjects as possible, who were tested by SRI at that time, in order to be able to compute a mental age for those subjects. There are a small number of subjects from these two sites, for whom no test scores are available, who will be included in the study. This is due to the fact that the selection process began before lists of tested subjects were available to us.

BIAS OF SAMPLE POPULATION:

The sample is biased by the fact that we are only interviewing subjects whose parents have responded positively to our written requests for permission to interview their children. We, therefore, are not only eliminating potential subjects, whose parents refused us permission, but are also eliminating those whose parents do not respond to our requests for permission.

METHOD OF OBTAINING PARENTAL PERMISSION:

As indicated above, our primary means of selecting the sample population has been via return of parental permission slips. In six of the eight Follow Through sites and in the four comparison sites, first requests for parental permission were mailed directly to parents of available third grade children, with the request that they return the permission slips to us in an enclosed evelope, indicating whether they would or would not let their child be interviewed.

The two sites where there was an exception to this procedure were Richmond and Philadelphia (both University of Florida programs). In these sites, letters were addressed to parents and mailed in bulk to the program directors, to be delivered by parent educators to parents at home. Parents mailed their responses to us.

It was recognized that by mailing parental permission requests and by asking parents to respond by mail, we might be limiting the number of responses we would get. However, it was felt that it was worthwhile to make direct contact with parents rather than encumbering schools with the task of distributing letters.

We were provided by each Follow Through and comparison site with a number of names of available third grade subjects that exceeded the number we needed for our sample. We hoped to get positive responses from at least 40 of the parents at each site.

Within a three week period after mailing initial requests, positive parental responses have not totalled the number needed in most of the sites. We have therefore, followed up our initial requests with second requests addressed to parents who have not responded, to be distributed to children in their classrooms to take home and return to school. The program directors and principals involved have cooperated by distributing and collecting these second requests, providing us with additional responses (both positive and negative.) We have begun interviewing those subjects, whose parents have responded positively.

The breakdown of responses to first and second parental permission requests, as well as exceptions to that procedure are indicated by site, below:

SITE	First Request				Second Request				
	RESPONSES				RESPONSES				
	# Sent	Pos.	Neg.	Unclear	# Sent	Pos.	Neg.	Unclear	Total Positive
RICHMOND									
U. Of Florida	81	54	0	1	Not Needed				
PHILADELPHIA									
U. Of Florida	90	waiting for responses							
TUPELO									
U. Of Oregon	75	16	0	0	59	38	4	1	54
Comparison	71	6	6	1	58	37	13	0	43
E. St. LOUIS									
U. Of Oregon	55	21	1	0	33	Waiting for responses			
Comparison	54	12	1	0	41	Waiting for responses			
BROOKLYN									
Bank Street	92	35	1	0		Second request to be sent			
Comparison	90	17	0	0		Second request to be sent			
TUSKEGEE									
Bank Street	86	33	2	0		Second request to be sent			
Comparison	60	9	0	0	51	Waiting for responses			
PHILADELPHIA									
U. Of Kansas	82	18	1	1	62	Waiting for response			
TRENTON									
U. Of Kansas	69	28	0	1		Second request to be sent			

From the breakdown above, it can be seen that selection of the total sample of 480 subjects has not been completed. This is due to two factors:

1. Class lists came in at varying times from the different Follow Through and Comparison sites.
2. Initial requests for parental permission have not brought the necessary number of responses to select the 40 subjects needed from each site. Parental responses that we have received have come in slowly.

Where necessary we are following up our first requests for parental permission, with second requests, distributed to children in school, in order to obtain the necessary number of subjects.

SUGGESTED ALTERATION IN METHOD OF OBTAINING SAMPLE:

If the Pupil Role Interview Study is to be conducted on a larger scale next year, the procedure for obtaining parental permission should be altered to avoid the time lags we have experienced this year.

In order to expedite the selection process, sites should be selected early in the year, so that names of potential subjects can be provided and parental permission obtained during the Fall of 1972, with the interviews to be conducted in the Spring of 1973.

The method of obtaining parental permission that will bring the largest response is to address letters to parents, to be distributed to children to take home and return to school. This type of distribution eliminates the problem of a time lag between mailing to parents and return of response from them. It also seems to evoke a larger response that will enable us to readily select the number of subjects needed. We recognize that this type of distribution places a responsibility on program directors, principals, and teachers who would help to distribute and collect letters. In sites where we have used this procedure, we have been offered a great deal of cooperation. We trust that this would be true in the future and wish to emphasize that a direct distribution of parental permission requests in the schools will facilitate the selection process. This is important in order to enable us to provide interviewers with the names of all subjects they will interview prior to the onset of interviewing.

Training of Interviewers

Carole Oligario

Due to both financial and geographical limitations, the CCEP Pupil Role Interview staff has had to develop a simple and precise method for training interviewers. Hiring interviewers from the local sites came immediately to mind, although this presented certain problems. Time has always been a major consideration. Our experience has shown us that coding and establishing coder reliability has required an enormous amount of time. To phrase our dilemma: Must a good interviewer be a coder and a reliable one at that? Being both coder and interviewer has been our role in the past. In looking back at the June Study, we observed that none of the interviewers were trained coders at the time the interviews took place (a working scheme was being developed then). The knowledge of interviewing procedure was at an infant stage, and yet, codable responses were still obtained. At the time, we were using our instincts as a guide, and we had a vague conception of probing: "Ask the child why, why, why, until he says, 'I don't know.'" Now we have found that guideline to be misleading. It results in much useless information. But this is still all afther the fact. In June, the inexperienced interviewer was still capable of being competent. Why? Perhaps it was that intangible quality called: sensitivity - extending one's self, give and take, that was operating. Intelligence was also a major factor. But mainly the ability to hear, listen and respond during the interviews helped produce the codable results.

In closely examining our interviews and results, we have become vividly aware of our past mistakes (inexperience). With this knowledge we have been able to establish a more precise interviewing method. With this new method, we believe that a sensitive, intelligent person without previous knowledge of our coding scheme or of developmental psychology can indeed produce codable interviews.

Using the above belief as a premise, we have developed a method that can train the average High School graduate as a competent interviewer. The method is short because of our own time schedule: the sooner we get the interviewers trained, the sooner they can interview, and the sooner we can code our data.

POLICY FOR HIRING

It is impossible for us to go to the 8 designated sites around the country doing the interviewing ourselves. We need local people familiar with the local mood, tempo and language subtleties of the given area. College students seem reasonably qualified for hiring, since the added education might be an aide in grasping the rationale behind our interviewing strategies.

Through prior contact with the local Follow Through director in each of the sites, we have been able to make contact with the nearest University or Community College in the area. The university or college then provides us with a list of possible candidates they recommend for the job.

We hire the students for a period of 4-6 weeks, during this time they are each expected to interview 20 children. They are each paid $150.00 for the period of employment. We realize that this is a very small salary, but it is all we seem able to afford. In many cases, the students are able to obtain college credit, or write papers, on the basis of their work with us.

TRAINING PROCEDURE

In the interviewing sites closest to New York, such as Brooklyn and Trenton, we were able to train them in a less hectic and a more leisurely fashion than has been the case in the more distant sites.

The training consists of the following steps:

1) Explaining the Interviewer Manuals.

We have developed a simple and precise guideline that can aide them throughout their interviewing period. One manual explains the rationale behind the questions, defines the Developmental Stages and Content areas, tells them how to spot these areas and how to ask the interview questions, etc. The second manual deals with the procedure preceding and concluding the interviews: contact with the school personnel, how to approach a child, develop rapport and keeping the dialogue alive. The procedure for transcribing and mailing of tapes, transcripts and tape recorders is also explained.

2) The Study of a "Transcribed Interview and an Annotated Interview".

On seeing a transcribed interview most interviewers get a vivid sense of what their experience as interviewers will be like. We use a typical interview, going over it carefully, showing them where the interviewer had made mistakes (insufficient probing or questionning) and where he/she has interviewed correctly. We encourage the trainees to spot portions of the interview that are correctly or incorrectly probed and to comment on them. The Annotated transcript illustrateds portions of the same interview that has been carefully examined for the interviewer's method. Notes about probing and style are on the right side of each page, opposite the specific questions. In studying the annotated transcript, they have an additional guideline and check for their use throughout their time as interviewers.

3) Video Tape (Used when the training is in New York).

Portions of various interviews are selected for their strengths and weaknesses. The use of the video-tape gives them a visual sense of what they've been hearing and reading about, and also what it is we expect from them.

4) Role-Playing.

We record different interviews where the trainers and trainees alternate between the role of child and the role of interviewer. We use this method to give them a sense of what a "real" interview will be like, and also to point out the problems they will be facing, etc. Role playing is also a good check of what they have digested in this loaded training period.

5) Distributing the Tape Recorders.

Our financial considerations has made it necessary for us to send one of our staff members to each of the different sites in distant locations as the hiring and training representative. For example, Carole Oligario - East St. Louis, Lenny Huber - Richmond, Nancy Gropper - Tupelo, Joe Roberts - Tuskegee, have been responsible for the interviewing, hiring and training of interviewers in the specific sites mentioned. The whole operation takes 3 days.

We are presently receiving transcripts from the above sites, which will give us a good indication of how successful our training method has been.

Appendices

Appendix A -- The Pupil Role Interview

Appendix B -- Pupil Role Interviewer Trainer Manual

Nancy Gropper

Appendix C -- The Interview Process

Carole Oligario

Appendix D -- The Annotated Transcript

Leonard Huber

Appendix E -- The Unannotated Transcript

Appendix F -- Our Policy for Hiring Persons for the Position of Interviewer

Appendix G -- The Face Sheet

Nancy Gropper

Appendix A

THE PUPIL ROLE INTERVIEW

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Part I. The Pupil's Preferential-Norms as Learner

1a. What kinds of things do you do in your classroom? (If responses do not include any academic matters, ask next - "What do you learn in your classroom?")

1b. Is that what you like to do?

1c. If you could do anything you like in the classroom, what would you like to do?

1d. Why would you like to do that?

2a. Tell me something about your teacher(s), what is (she)(he)(they) like? (If the child uses one word response, such as "she's nice" or "she's okay", ask the child what he/she means by nice or okay.)

2b. If you could have any kind of teacher you wanted, what would you like your teacher to be like?

2c. Why would you like to have a teacher like that?

2d. Have you ever had a teacher like that?

3a. What are the other children in your classroom like? (If the child uses a one word response, ask what he/she means by that word.)

3b. If you could have the other children be any way you wanted, what would you like them to be like?

3c. Why would you like them to be like that?

4a. What sorts of things do you do at home that help you in your classroom? (help you to do things in class?)

4b. What sorts of things could you (would you like to) do at home that would help you in the classroom? (help you to do things in class?)

4c. Why would you do that?

4d. Does anybody at home do things with you that help you in the classroom?

4e. How does he/she/they help you?

4f. If you could have somebody at home do things that would help you in the classroom, what would you like he/she/them to do?

4g. Why would you like them to do that?

5a. What rules do you have in your classroom?

5b. What rules would you like to have in your classroom? (Select one)

5c. Why would you like to have that rule?

6a. What are some of the things you use in your classroom that help you to learn?

6b. What things would you like to have in your classroom to help you learn?

6c. Why would you like to have (that thing/those things). (Continue probe, etc.)

7a. What's school for anyway?

7b. What should school be for?

7c. Why should school be for that?

Part II. The Pupil's Ego-Ideal (Questions selected from Leland Van den Daele's Ego-Ideal Interview.)

1a. When you are grown up, what two or three kinds of work would you like to do?

1b. Which would you like to do the most?

1c. Why would you like to do that?

2a. When you are grown up, what kind of house would you like to live in?

2b. Why would you like that kind of house?

2c. What would you like to see out the window?

2d. Why?

3a. When you are grown up, what would you like your mother/father to think of you?

3b. Why?

3c. What kind of person will you have to be so that your mother/father will think of you in that way?

Appendix B

PUPIL ROLE INTERVIEWER
TRAINER MANUAL

INSTITUTE FOR PEDAGOGICAL STUDIES
Columbia Classroom Environments Project
Teachers College, Columbia University

EXPLANATION OF THE INTERVIEW

INTRODUCTION

The purpose of the interview you will be conducting is to find out how children reason about events in classrooms. The questions are ordered so that the child is asked to talk about an event in his or her real class, how he or she would like an ideal class to be in relation to that event, and why he or she would like it to be that way. In Part II of the interview, we are interested in children's responses to questions that deal with the future (when they are grown-up) and their explanations of why they want to be or do certain things.

The information provided in these interviews will later be coded by people at Teacher's College, according to a developmental scheme. In order to be able to code, we need as much information as possible from the children as to why they prefer to do or be certain things. Do not worry if some children repeat what they have told you about their real class, when you ask them about an ideal class, or if children tell you about what they do now when you ask them about being grown up. The coding scheme we are using takes into account the fact that some children will deal with events in an ideal class or their future experiences only in terms of the experiences that they already had. We also know that some children will have less to say than others in explaining their preferences. So don't worry if some children talk a lot or if others have very little to say when you ask them questions.

The main points we want you to keep in mind are these:

1. All children should be encouraged as much as possible to explain their preferences (in terms of ideal class or the future) as fully as they can.
2. There are no right or wrong answers to the questions. We are interested in whatever the child has to say.

HOW TO ASK THE INTERVIEW QUESTIONS

"What" Questions About Reality

Looking at the questions in Part I of the interview, you can see that part (a) of each question asks the child about something specific in his or her real classroom. Taking question 1a as an example, you ask:

"What kinds of things do you do in your classroom?"

Most children will respond by mentioning a few things that they do, often academic topics such as reading, math, etc. If a child mentions only one thing that he or she does in class, ask him or her if there is anything else that he or she does. We do not need a long series of responses unless the child voluntarily offers a lengthy response. So don't push the child too much. Just encourage him or her to make more than one response.

You may notice that the child responds to the first question without mentioning any academic things, for example:

"I play" (or) "I talk to my friends."

In this case, follow up by another question, saying:

"What do you learn in your classroom?"

You should also note that children may respond to any one of the questions by saying "I don't know." Encourage the child who makes this response to think of something specific without being too forceful. We do not want the child to feel too pressured. You can say something like:

> "There are no right or wrong answers. We just want to know what you think."
>
> or
>
> "It doesn't matter if you don't know for sure. Can you think of something that you do in your classroom?" (Underlined part changes according to which question you are asking.)

REMEMBER that we do want to get answers from the child, but we also want each child to be as relaxed as possible. Gentle encouragement will be more productive than pressuring the child too much.

"WHAT" Questions about Ideal

Each specific question about the real classroom, in Part I, is followed by a question about an ideal classroom. In Part II, we ask the child specific questions about ideal future experiences. Again, taking question 1 as an example, after each child has mentioned a few of the things that he or she does in the real class and responded to the follow-up question ("Is this what you like to do?"), you ask:

> "If you could do anything you like in the classroom, what would you like to do?"

Some children will again offer more lengthy answers than others, generating a stream of things they would like to do. If a child does not respond, use the same kind of encouragement suggested on the preceding page to get the child to respond. Here again, we do not need long answers, unless the child spontaneously offers them. But if the child only mentions one thing he or she would like to do, you should ask:

> "Is there anything else you would like to do?"

so that he or she offers at least a couple of answers.

BE SURE NOT TO FEED ANSWERS TO THE CHILD !!!!! When you are encouraging the quiet child to respond by asking questions that are not spelled out on the interview schedule, ALWAYS BE AS GENERAL AS POSSIBLE.

DO NOT SAY THINGS LIKE.....

> "Can you think of anything you would like to do in class? Perhaps, reading or math?" or,
>
> "Isn't there anything you'd like to be when you're grown-up? Maybe like a doctor or a fireman?"

Just generally encourage the child to think of things that he or she would like to be or do or that he or she believes to be true, without suggesting specific responses.

"WHY" Questions

The last part of each question asks the child why he or she prefers the choice made. Looking at question 1c, you ask the child "Why would you like to do that?" as a follow-up to asking what things he or she would like to do in class. If the child has mentioned a stream of things, ask "Why would you like to do those things?"

All "Why" questions should ask the child for his or her preferential judgment. The first "Why" question you ask is printed in the interview schedule. It comes after each question about specific events in real and ideal class, or future life. After you ask that first "Why" question, you continue to ask for further justification of the child's preference, picking up on the explanation the child has just given. All these additional questions should be worded in a way that asks the child for a preferential response . For example:

Why do you like to _________________ ?

Why should ______________________ ?

Why ______________ (this option) __________ (among other options)?

Why is ____________ important? Why is ____________ (good)?

What is important about that?

What's good about that?

Why would you choose that?

Why would you do that?

You continue asking such questions until the child repeats previous preferential explanation (given in response to the current probing or in response to probing of previous questions.) or until he or she says, "I don't know." and your encouragement brings no further response.

The following dialogue is offered as an example of how to probe the child's explanation of why he or she wants to do that thing or those things.

Int: If you could do anything you like in the classroom, what would you like to do?

Child: Play games.

Int: Why would you like to play games?

Child: Because it's fun.

Int: Why do you like to have fun?

Child: I don't know.

Int: Well, can you think of any reason why you like to have fun?

Child: Umm......(Silence)

Int: You know, there are no right or wrong answers, I'd just like to know if you can think of a reason why you might like to have fun.

Child: I just like to have fun. Playing games is fun.

You can stop asking "Why" questions here because the child has reached a point of repeating himself. He has said it's fun to play games more than once and has said, "I don't know ",with no new responses to further encouragement.

The above line of questioning can be followed with all the "Why" questions in Part I and Part II of the interview. You keep asking the child "why..." picking up on the explanations he or she has previously given until the child repeats justifications already mentioned or until he or she says "I don't know" and your encouragement to think of an explanation produces no additional response. This should be adequate in providing the information we need to code.

DEVELOPMENTAL STAGES AND CONTENT AREAS

In addition to understanding how to pursue the "Why" questions, we would like you to have a general idea of both the different developmental stages and different content areas into which children's responses will fall, when you ask the questions explained in the previous sections. The coders code responses in two ways: by developmental or by content area. We would like you to have a general idea of the different stages and content areas that are coded.

DEFINITIONS OF DEVELOPMENTAL STAGES

Pre-operational:

The child's view of the world is a step-by-step replica of the actions and events he or she has already seen or experienced. The child will regurgitate these actions or events, and does not understand the difference between the way things are now and the way they will be, in the future. The child does not have a logical way of explaining events and does not see self-contradictions in his explanations.

Example:

Q. When you are all grown up, what kind of house would you like to have?
A. Like we have now.
Q. What's your house look like?
A. A big house. Yes, a big lawn.
Q. Why would you like to have a house - a big house, with a lawn?
A. So we can play in it.

(Even though the child's last response may not seem illogical, it is considered pre-operational because the child has merely related playing to the previous response - big house, big lawn; without being able to explain the association between play and these things.)

Concrete Operational

The child's thinking is still based on experience. But now he or she can explain preferences in ways that the pre-operational child cannot. He or she can organize information presented by placing events into categories, by contrasting the categories, by explaining the functions of things that he or she prefers, or be explaining social expectations that influence choices. However, the child assumes that others have the same point of view. There is no recognition that others are different, except as differences relate to age, sex, role or other external differences. He or she can imagine future situations but cannot compare one imaginary situation with another.

Example:

Q. When you are grown up, what kind of house would you like to live in?
A. A big house with a big lawn, like the one we have now.
Q. Why would you like to live in a big house with a big lawn?
A. There'd be lots of room and I could just send the kids out to play on the lawn.
Q. Why would it be good to do that?
A. It would be easy. I wouldn't have to take the kids to the playground.

Formal Operational:

The child can talk about things that are possible, even though he or she has not experienced them. He or she sees differences in others that go further than age, sex or role. He or she recognizes that others may have a different point of view. The child's explanations of why something is preferred is explained in terms of principles and values as well as experience.

Example:

Q. When you are grown up, what kind of house would you like to live in?
A. A big house with a big lawn.
Q. Why would you like to live in a big house with a big lawn?
A. It would be nice to have a place with lots of room and a place for kids to play. Some people have to live in crowded places, but I wouldn't want to do that. It's no good.
Q. Why do you think that's no good?
A. Because...well, I mean if people live in crowded places because they want to, then that's okay. But if they don't have enough money and have to live there and don't like it, it's no good. Everybody should be able to live in big places, if they want to.

DEFINITIONS OF CONTENT AREAS:

There are three content areas in which the child's individual preferences might fall. The child's answers might focus on any one or a combination of these areas, regardless of the developmental stage that the child is in.

The content areas are:

1. Feelings, wants, desires or avoidance of pain- the child's focus is on the self in explaining his or her preference.

Example:

Q. If you could do anything you like in the classroom, what would you like to do?
A. Play games.
Q. Why would you like to play games?
A. Because I want to have fun.
Q. Why do you like having fun?
A. I like to - it makes me feel happy.
Q. Why do you like to feel happy?
A. I'd rather be happy than sad.
Q. Why is it better to feel happy than sad?
A. I don't know.
Q. Can you think of any reason?
A. No.

2. Actions, Functions, Content - the child explains why something is preferred in terms of the action involved, function of what he or she is doing, or the content of the preferred choice.

Example:

Q. If you could do anything you like in the classroom, what would you like to do?
A. Play games.
Q. Why would you like to do that?
A. Because I want to get exercise and be strong.
Q. Why would you want to be strong?
A. So when I grow up, I can be big and strong.
Q. Why do you want to grow up and be big and strong?
A. So I can do lots of things.
Q. Why would you like to do lots of things?
A. I don't know. I just would.

3. Regulations, Rules, Values - the child explains why something is preferred in terms of the regulations and rules imposed by people in authority or the society at large. The child may also justify his or her preference by paying attention to the values of the immediate environment or the society at large. He or she may also use categories as rules, to justify preference.

Example:

Q. If you could do anything you want in class, what would you like to do?
A. Play games.
Q. Why would you like to do that?
A. Because it's fun.

Q. Why do you like having fun?
A. I don't know. It's just fun doing that. All the kids have fun when we play games.
Q. Why do you think it's important for all the kids to have fun?
A. It's fun. Fun is fun.

REMEMBER that any one of the above content areas or a combination of them could be a focus of the child's explanation of why he or she prefers something, whether the child is pre-operational, concrete operational or formal operational. However, the explanation that falls into each content area will be more advanced, the more advanced the stage of development of the child.

HOW TO CLARIFY DEVELOPMENTAL STAGES AND CONTENT AREAS

You will notice, when you interview children, that some of them are clearly in one developmental stage, but the content area is unclear or mixed or vice versa. There are certain kinds of questions you can ask that will clarify the stage or content area. These questions are not included in the interview schedule because they are very dependent on what each individual child says.

Pre-operational or Concrete Operational?

It may not be clear if a child is pre-operational or concrete operational from his spontaneous answers to "Why" questions. For example, taking the dialogue on page 4 the child has said:

"Because it's fun."

He has not been able to say why he wants to have fun. After you have asked him the "Why" questions and gotten no new response, you can pose an additional question that will clarify if he is pre-operational or concrete operational, such as:

"Would you rather have fun or would you rather play?"

By doing so, you are placing in opposition two of the things that the child has already said he likes. If the child responds to this additional question by saying:

"It is fun to play."

he has recognized that fun is a category into which play fits. You might continue by asking:

"What other things are fun?"

requiring the child to extend the category. If the child can mention other things, coders can be fairly sure that the child is concrete operational. If the child cannot respond to the questions, we will assume that he is still pre-operational.

You could also ask a question which requires the child to suggest rules in order to clarify which stage he or she is in. Questions like:

"Should you always do things that are fun?"

or

"Why should you do something that is fun to do?"

may elicit responses that will be helpful in coding. The concrete operational child will be able to show some reasoning in answering such questions while the pre-operational child will be repetitive or illogical.

Concrete Operational or Formal Operational?

If it seems that a child might be formal operational, but you are not sure, you could ask him or her, as a final question, whether everyone else feels the same way he or she does. The formal operational child can recognize that others may have different points of view from his or her own. This child has values and principles conditioned by personal experience and individual differences and can understand that others may have different values and principles based on their experience.

CONTENT AREAS:

As far as the different content areas go, it has been our experience that children sometimes mix their responses between two or sometimes three areas. It will be important for coders to know which of the content areas is most important to the child in justifying his or her preference.

If you sense that a child's responses are mixed between two or more content areas, as defined on pages 6-7, try to pose a final question, after you have completed the "why" probing, that will clarify which of the content areas is most important to the child in justifying his or her preferences.

Again, taking the dialogue on page 4, the child might be able to elaborate on the different things that he does when he plays (area 2), or he might want to talk more about how it makes him feel to have fun (area 1). We do not know which is more important if he merely says:

"I like to play because it's fun."

As a final, clarifying question, you could ask a question like those used to clarify developmental stages, such as:

"Would you rather have fun or play?"

If the child chooses one of those (let's say fun), you can ask:

"Why would you rather have fun?"

The child's response will probably help the coder to know the content area that the child is focusing on.

SUMMARY

If you remember the following list of things, it will help you to conduct a good interview.

1. Ask the child the questions on the interview schedule, regarding specific things in the class or future experience.

2. Ask the child "Why" questions, which elicit preferential responses, in regard to specific things in class or future experience, until he or she becomes repetitive or says, "I don't know."

3. Remember to encourage the child to answer a question even if he or she says, "I don't know.", but don't be too forceful. Tell the child that there are no right or wrong answers, reassure him or her that we are only interested in what he or she thinks is so. If it really seems, after encouragement, that the child cannot answer, go on to the next question.

4. Do not feed answers to children. Never offer them specific choices in the process of asking the questions, unless the child has already mentioned the choice.

5. Try to remember the general differences for the developmental stages

   Pre-operational
   Concrete Operational
   Formal Operational

   and the differences in the different content areas

   Feelings, wants, desires, avoidance of pain
   Actions, functions, content
   Regulations, rules, values

6. If the child's responses seem unclear or mixed in terms of the developmental stage or content area, then ask a final question that will help to clarify the stage or area.

   The kinds of questions you might ask are:

   1. Ones that place two things the child has said in opposition to each other.

   2. Ones that ask the child to generate rules.

   3. Ones that ask the child if everyone feels the same way he or she does.

   4. Ones that ask the child to explain what is meant by a categorical word that he or she uses (i.e. fun,work,nice,etc.).

Appendix C

The Interview Process

This process involves selecting the times of the interview, facilitating communication between you and the child, and transcribing the interview.

Selection of Interview Time

Before you go to your assigned school, four copies of a list of the children you will interview will be mailed to you, one each for the principal of the school, the Follow Through director, the teacher and yourself. As soon as possible, you should then go to the school in order to negotiate with the teacher the time you will interview individual children on the days that you are available. After the negotiation, you should note the time that you will interview an individual or an alternate from the lists and give them to the above named persons. The lists then become your interviewing schedule. Make sure that the time of the interview does not compete with one of the children's favorite activities and that the time is mutually convenient for you and the teacher. Arrange with the teacher a procedure for taking the child out of the classroom, in order to avoid asking the teacher for a child each time you come to the classroom and possibly causing disruption of regular classroom activities.

From now on you should attempt to erase from your mind all your previous experiences with interviewers. Dismiss the notion of the interviewer behind the desk and the interviewee opposite him from your thoughts. Dismiss the notion of power...one individual (interviewer) having another (interviewee) in control.

Interviewing is talking with another human being like yourself. It is making contact, developing rapport and relating with another person. Interviewing is feeling and being sensitive to the thoughts and personality of another. Interviewing is respecting another's individuality like your own. Most of all interviewing is establishing trust. With children the latter is crucial. You must keep all these points in mind when you make your first contact with the child.

From the moment you go into the classroom to pick up the child, that first initial contact - you are already eliciting positive and/or negative responses from the child. He/she has formed an opinion of you - however vague and superficial. Make sure you are relaxed and natural. Children are acutely sensitive to non-verbal speech. Make the first eye contact a definite one. Be yourself.

You are now escorting the child to the interviewing room. The walk from the child's classroom should be used as the initial means of developing rapport between you and the child. Have some physical contact with the child (example: arm around his/her shoulder) only if that is natural to you. Never force anything. The child will know. As you are walking, begin explaining to the child what you will be doing. Tell him/her very simply that you are asking questions to many children hoping to find out what they feel about school and what children are generally thinking about. Tell him/her that he/she can answer the questions anyway he/she wants as "There are no right or wrong answers". (It is not necessary to repeat "there are no right or wrong answers" a second time. Too much emphasis on that point can cause suspicion.)

When you have arrived in the interview room, make the sitting arrangement as comfortable as possible. Set the chairs closely together to aid interviewing as well as recording.

Before you begin the interview, demonstrate the tape recorder to the child, so that he is fully aware of the mechanism. When this is not done, oftentimes the child interrupts the interview to ask questions about the tape recorder. It is recommended that you use both your voice and the voice of the child for "testing" and then play it back. Test the tape recorder before each interview. This is primarily a precautionary measure, as there might be technical break downs in the recorder. In the course of the interview, periodically check the needle to see if the tape is moving. Always keep the volume at medium level. Use the extension cord whenever possible as the battery can easily go dead or be weak.

Now that you are both sitting comfortably and are relaxed, you may begin the interview.

Have the child record her name and grade on the tape. Then continue the interview. After the interview label the tape as follows:

NAME	SCHOOL	CLASS
CITY	DATE	

Use one side of the tape for each child.

During the interview, a child might be bouncing a ball and intently answering questions. Maybe this helps him/her to be comfortable. If that's the case, let him/her bounce the ball (provided he/she isn't merely playing and being disruptive or inattentive.

The child might want to sit on your lap or hold your pencil. Do not feel that this might be a disciplinary problem. Perhaps this is the best way for that child to talk openly. Use your personal sensitivity in such situations.

REMEMBER: You must have the child open up to you. So you must be flexible. Do not be a machine asking questions or an "interviewer" per se. Don't be afraid to make small talk.

Part II

How to Run the Interview

1. 1st contact - Relating

   a. Be yourself

   b. Eye contact

   c. "Give and take"

2. Interview

   a. Keep on the question track

   b. Keep in mind why you are asking the questions

   c. Always keep in mind why and what you need and want to find out

   d. Keep in mind range of possibilities in responses to help you probe.

3. Sensitivity

   a. Know when to stop questioning

   b. Know when the child has had enough

      (1) restlessness

      (2) silence

      (3) expression: facial and physical

4. Rephrase questions if child does not seem to understand it.

   a. Never change a why question to a what question, only change the other wordings.

5. Patience

   a. Wait for child to think.

6. Be alert

7. Voice

   a. Be alive - not a question machine

   b. Talk to the child, not at him. (Keeping in mind what you want to find out.)

8. Go to the next question

   a. Take cues from child as well as self.

Transcribing the Interview

As a resident of the community, we expect that you are better able to communicate with the child in his/her local speech than someone from outside your community. We also expect that during the interview the child may not speak clearly or directly intothe hidden microphone of your cassette tape recorder. Of course, we believe that it is important not to tell the the child to speak in the microphone, in order to avoid distracting the child from his/her trend and mode of reasoning. Also, the time lapse between the interview and the transcription affects the accuracy of your transcription. The longer you wait to transcribe the interviews, the more you will forget. For these reasons, we believe than an essential part of the interview process is the immediate transcription of the tape.

KEEP IN MIND THE FOLLOWING PROCEDURES

Before the Interview

1. Make certain that you establish a good rapport with everyone you come in contact with in the school.

This should be one of your primary concerns as you are your own public relations person, so to speak. It has been found that whenever bad relations existed with the school personnel, the resulting atmosphere was not conducive to objective data collection.

2. Before any arrangements are made for interviewing, you should make a point to meet with the principal and/or Assistant Principal to make sure everything is in order.

3. Make arrangements with the Principal about a suitable quiet room for the interviews. Have him or her introduce you to the classroom teacher whose classroom will be involved in the interviews.

4. Make appropriate time arrangements with the classroom teacher for taking the child out of class.

After the Interview

1. Escort the child back to class.

2. Transcribe the entire interview immediately after the interview. This is important. If you wait too long you may not remember what transpired. Transcribing is a cautionary measure as oftentimes the tape does not always adequately record what has been said. You may transcribe the interview in long hand or type it, which ever is more convenient.

IMPORTANT

1. Mail transcripts every week. Send them by certified mail. Envelopes will be provided.

2. Hold on to thetapes until you have 20 interviews (10 tapes). That is, until you are finished with all your interviews. Then mail them to us in the boxes we will be providing.

GOOD LUCK AND GOOD TIME

Appendix D

THE ANNOTATED TRANSCRIPT

What follows is a transcript of the first part of an interview done several months ago. In the right-hand column are comments about what has been done properly and what was done improperly. The interview was deliberately selected as an example because it was a difficult one for the interviewer. Thus, the interviewer made a lot of "mistakes." But it is important to note that even thoughtthe interview should have been conducted differently, it was still adequate for us to code it. There's no such thing as a perfect interview. Don't feel pressured to do everything "just right." Don't get upset if you think you've made a mistake that you can't correct. The best interview will come if you're relaxed.

ANNOTATED TRANSCRIPT

Q. And your class, into the tape recorder so I know, you know....

A. Now?

Q. Now, okay.

A. [redacted]

Q. [redacted] right, and what class are you in, [redacted]

A. [redacted].

Q. [redacted], okay, let's turn it off and make sure its working.

HERE the interviewer is just getting the child to say his name and class on the tape. We need this in case the tape's label gets lost. After the child says his name and class, the interviewer rewinds the tape and plays it back. This gives the child a chance to hear his own voice and get used to the tape recorder. It also gives the interviewer a chance to check if the machine is working properly.

Q. And I'll start asking you questions, okay, okay, first question is [redacted] what kinds of things do you do in your classroom?

THIS is question (1a). The interviewer leads into the question in a casual way. The interview should always be like a conversation, not a series of questions.

A. Social studies.

Q. Uh-huh.

A. Reading.

Q. Reading.

A. And math.

Q. Math.

A. Phonics.

Q. Phonics.

WE don't need to know everything about the child's classroom. A few things are enough. So, the interviewer doesn't really press the child to say a lot about his classroom. The interviewer just acknowledges what the child has to say.

A. ...

Q. Anything else?

A. English

Q. English.

A. Nothing else.

IN FACT, here the interviewer has asked an unnecessary question. We really don't need to know "anything else."

Q. Nothing else, okay, are those the things, do you like doing those things? A. ...	THIS is question (1b). The interviewer has reworded it in a perfectly acceptable way in order to sound casual.
Q. You do, shaking your head yes so I see. A. Yes.	OF COURSE, the tape recorder doesn't record the child's gestures, so here the interviewer says aloud what the child has indicated silently. That way we still have a record of the child's answer.
Q. Okay, tape recorder doesn't record those things, okay, let's say you could do anything you wanted to in the classroom, what would you like to do? A. I would like to write stories.	QUESTION (1c). Again, it's reworded in a conversational way. The interviewer also reminds the child to say his answers out loud. But it isn't always a good idea to mention the tape recorder, since some children are afraid of them. THIS is a question about the ideal.
Q. You'ld like to write stories, that's interesting, why would you like to do that? A. Cause I like to write stories.	THIS is the first "why" question in the interview, question (1d).
Q. Mm-huh, why do you like to write them? A. It gives me ideas.	THE interviewer has made an appropriate probing question by asking the child why he likes something. (It's still part of question 1d.)
Q. Writing stories gives you ideas, uh-huh, why does writing stories give you ideas. A. I don't know. Q. Mm-huh, you mean like while you're writing you get ideas	HERE the interviewer has asked an incorrect probing question. You should always ask why a child likes something or prefers something. But here the interviewer has asked why something happens. A correct probe would have been "Why do you like to get ideas?"

about things?

A. Yes.

Q. Uh-huh, and why do you like that?

NOW the interviewer asked the correct preferential probe.

A. Make me feel good.

Q. It makes you feel good, uh-huh, why do you think it makes you feel good?

AGAIN, an incorrect probing question. It's not preferential. A correct probe would have been "Why do you want to feel good?"

A. I don't know.

"I DON'T KNOW" is a signal to the interviewer to stop that line of questioning.

Q. You don't know, okay, okay, what is your teacher like?

QUESTION (2a).

A. ...

Q. What does your teacher seem to be to you?

A. I don't know.

Q. Can you tell me anything about your teacher?

THE child is not answering the question. There are a lot of things that could cause this. The child may have nothing to say, or he may be afraid to say what he feels. If you think the child is afraid to speak, then reassure him that no one from the school will know what he says. That's not what the interviewer did here, however.

A. ...

Q. How sheis in the classroom?

THIS interviewer approached the problem by rewording the question and gently encouraging the child to talk.

A. ...

Q. I know you just got a new teacher, right, you had a different teacher before?

THE interviewer also tries to relate the question to the child's specific situation. This approach pays off, as the child finally does give an answer.

A. Yes.

Q. So what about your old teacher, can you tell me anything about her?

A. She was nice.

Q. She was nice, uh-huh, and what

A ONE-WORD answer like "nice" is really too brief, so the interviewer tries to elicit some more information.

transcript 4

made her nice. What kinds of things made her nice?

A. She have parties.

Q. She gave parties and that was nice, huh?

A. She gave toys, too.

Q. She gave toys, what would you like your teachers to be like, if you could have any kinds of teachers you wanted to, what would you like them to be like?

A. Do fun things.

QUESTION (2b), another question about the ideal. By her wording, the interviewer has ended the previous question ("she gave toys") and introduced the new question. There was enough information from Question 2a. Question (2b) has been reworded to suit the context of the conversation.

Q. You'ld like to do fun things, mm-huh, why would you like your teacher to do fun things?

A. I'ld feel better.

THIS is question (2c), another "why" question.

Q. You'ld feel better, uh-huh, why would you feel better if you did fun things?

A. I don't know why.

AGAIN, an incorrect probe. This probe asks why something happens instead of why the child wants something. The correct probe would be "Why do want to feel better?" Probes should always be in the form of "Why do you want...?" or "Why do you like...?" etc.

AS IN previous examples, the interviewer stops upon receiving an "I don't know" answer.

Q. Have you ever had a teacher like that, a teacher who does fun things?

A. No.

QUESTION (2d). A "no" answer calls for no further probing. A "yes" answer would only require a "who?" from the interviewer.

Q. No, okay, what are the other children in your classroom like, [redacted] A. They're nice. Q. Uh-huh, what makes them nice? A. They share things.	QUESTION (3a). Note that the one-word answer "nice" is not quite adequate, so the interviewer encourages the child to say a little more.
Q. They share things and that's nice, if you could have the other children be any way you wanted them to, what would you like them to be like?	QUESTION (3b), another question about the ideal. As in question (2b), the interviewer ends the previous question and introduces this one by recapitulating the previous answer.
A. I don't know. Q. You don't know, would you like them to be nice? A. Yes.	HERE is a new kind of incorrect probe! The interviewer has fed an answer to the child. This is a mistake you should always try to avoid. The child himself has not used the word "nice" in this answer. It is the interviewer's word. So we don't know if the child would have used it himself. What happened is that the child used the word "nice" in a previous answer (3a), so the interviewer re-introduces it. A better way to make the same point--without feeding the child an answer--would be to say "Would you like them to be the same or different as they are now?"
Q. Yes, okay, why would you like them to be nice? A. Share things and enerything.	QUESTION (3c), another "why" question.
Q. And why would you like them to do that? A. It's better.	A GOOD preferential probe.
Q. Mm-huh, what is it better than? A. Than hate. Q. It's better than hate. Sharing	THE interviewer is trying to formulate a a dilemma, but it's really to early for that since there has been only two "why" probes. The child has certainly not been probed completely.

things is better than hate. Okay, why is it better to share things, do you think?	"WHY IS IT BETTER..." is kind of a preferential question, although it's better to use "Why do you want..."

[redacted]

Q. And your class, into the tape recorder so I know, you know...

A. Now?

Q. Now, okay.

A. [redacted].

Q. [redacted], right, and what class are you in, [redacted]?

A. [redacted].

Q. [redacted], okay let's turn it off and make sure it's working

Q. And I'll start asking you questions, okay, okay, first question is [redacted] what kinds of things do you do in your classroom?

A. Social studies.

Q. Uh-huh.

A. Reading.

Q. Reading.

A. And math.

Q. Math.

A. Phonics.

Q. Phonics.

A. ...

Q. Anything~~s~~ else?

A. English.

Q. English.

A. Nothing else.

Q. Nothing else, okay, are those the things, do you like doing those things?

A. ...

You do,
Q. /Shaking your head yes so I see.

A. Yes.

Q. Okay, tape recorder doesn't record those things, okay, let's say you could do anything you wanted to in the classroom, what would you like to do?

A. I would like to write stories.

Q. You'd like to write ~~xmt~~ stories, that's interesting, why would you like to do that?

A. Cause I like to write stories.

Q. Mm-huh, why do you like to write them?

A. It gives me ideas.

Q. Writing stories gives you ideas, uh-huh, why does writing stories give ~~x~~you ideas?

A. I don't know.

Q. Mm-huh, you mean like while you're writing you get ideas about things?

A. Yes.

Q. Uh-huh, and why do you like that?

A. Make me feel good.

Q. It makes you feel good, uh-huh, why do you think it makes you feel good?

A. I don't know.

Q. You don't know, okay, okay, what is your teacher like?

A. ...

Q. What does your teacher seem to be to you?

A. I don't know.

Q. Can you tell me anything about your teacher?

A. ...

Q. How she is in the classroom?

7-E-3

A. ...

Q. I know you just got a new teacher, right, you had a different teacher before.

A. Yes.

Q. So what about your old teacher, ~~mx~~ can you tell me anything about her?

A. She was nice.

Q. She was nice, uh-huh, ~~mi~~ and what made her nice, what kinds of things made her nice?

A. She gave parties.

Q. She gave parties and that was nice, huh?

A. She gave toys too.

Q. She gave toys, what would you like your teachers to be like, if you could have any kinds of teachers you wanted to, what would you like them to be like?

A. Do fun things.

Q. You'd like them to do fun things, mm-huh, why would you like your teacher to do fun things?

A. I'd feel better.

Q. You'd feel better, uh-huh, why would you feel better if you did fun things.

A. I don't know why.

Q. Mm-huh, okay, have you ever had a teacher like that, a teacher who does fun things?

A. No.

Q. No, okay, what are the other children in your classroom like, [redacted]?

A. They're nice.

Q. Uh-huh, what makes them nice?

A. Thoy share things.

Q. They share things and that's nice, if you could have the other children be any way you wanted them to, what would you like them to be like?

A. I don't know.

Q. You don't know, would you like them to be nice?

A. Yes.

Q. Yes, okay, why would you like them to be nice?

A. Share things and everything.

Q. And why would you like them to do that?

A. It's better.

Q. Mm-huh, what is it x better than?

A. Than hate.

Q. It's better than hate, sharing things is better than hate, okay, why is it better to share things do you think?

A. Because if you don't share things, place will be nothing.

Q. Mm-huh.

A. It ~~not~~ would be no good.

Q. Why wouldn't it be any good.

A. Because without no friends, you're no where.

Q. In other words, friends are people who share things?

A. Yes.

Q. Uh-huh, can you x have friends who don't share things with you?

A. ...

Q. No?

A. No.

Q. Friends would always share things with you?

7-E-5

A. Sometimes.

Q. Would friends do anything else?

A. I don't know.

Q. Uh-huh, okay, what sort of things do you do at home that help you in your classroom, Edgar?

A. Study.

Q. Uh-huh, what do you study?

A. Things that my teacher does so that if I have a test, I could do it all right.

Q. I see, uh-huh, and what subjects or what kinds of things do you have tests in that you study for at home?

A. Spelling.

Q. Spelling, anything else?

A. Social studies, too.

4B

Q. Mm-huh, okay, what sorts of things would you like to do at home to help you in your classroom?

A. I don't know.

Feeding the child response

Q. Don't know, would you like to do the same things you're doing now, this studying for your spelling tests?

A. Yes.

Q. How would you do that?

A. By going at my house, looking it up, and then I look it up in the dictionary and everything and then I come to the classroom and I tell the teacher.

Q. I see.

A. The words.

4C

Q. Uh-huh, why would you do that do you think?

A. ...

7-E-6

Q. Why ~~xxx~~ would you look the things up at home and then come into class?

A. So I could get a better grade.

✓ Q. Mm-huh. and why do you want to get a better grade?

A. ~~x~~ So I could be smart.

Q. Mm-huh, and why do you want to be smart?

A. So when I grow up, I can have a good job?

Q. Uh-huh, and why do you want to have a good job when you grow up?

A. So I can have a better life.

Q. Mm-huh, why ~~x~~ would you have a better life if you had a good job?

a status

A. You ~~gex~~ earn money out of it.

Q. Mm-huh, if you have a bad job do you earn money?

A. Not too much.

Q. Not too much, you earn more money if you have a good job?

A. Yes.

Q. And why is that better?

A. Because you need money to buy things.

Q. Mm-huh, and what sorts of things would you buy with your money?

A. Clothes.

Q. Mm-huh.

A. Food.

Q. Mm-huh.

A. That's all I can think of.

Q. Mm-huh, now tell me [redacted] would you rather, would you rather have a good job so you could earn lots of money or would you rather be smart?

A. Be smart.

Q. Mm-huh, why would you rather be ~~m~~ smart do you think?

A. I don't know.

Q. Uh-huh, what's it mean to be smart?

A. Do many things.

Q. To be able to do many things, why is it good to do many things? do you think?

A. I don't know.

Q. Mm-huh, okay, does anybody at your house do things that help you in your classroom, does anybody do anything at home to ~~mt~~ help you in your ~~mix~~ classroom?

A. No.

Q. No, you do your studying by yourself?

A. ...

Q. Uh-huh, what rules do you have in your classroom, [redacted]?

A. Not to sneak out of the classroom.

Q. Uh-huh, anything else?

A. Not to talk back to your teacher.

Q. Not to talk back to the teacher, anything else?

A. Not to hit other people too.

Q. So not to sneak out of the classroom, not to talk back to the teacher and not to hit other people, okay, if you could have any kinds of rules you wanted to have~~x~~ in your classroom, what kind of rules would you like to have?

A. I don't even know.

Q. You don't even know, would you like to have the same rules you have in your classroom now?

A. ...

Q. Would you like to have the rule no sneaking out of the room?

A. Yeah.

Q. Would you like to have the rule no talking back to the teacher?

A. I don't know.

Q. What about the one not hitting other kids, would you like to have that rule?

A. Yeah.

Q. Yeah, why would you like to have that rule?

A. Because it hurts other people when you hit.

Q. I see, and why is that bad, I mean...

A. Because you hurt them.

Q. And why don't you want to hurt other people?

A. Because it's bad for you.

Q. Why is it bad for them?

A. I don't know.

Q. Mm-huh, okay, what are some of the things you use in the classroom to help you learn?

A. Rulers.

Q. Rulers.

A. Paper.

Q. Paper.

A. Pencils.

Q. Uh-huh.

A. ...

Q. Can you think of any other things?

A. The board.

Q. The board, the blackboard, yeah, anything else?

A. The teacher.

Q. The teacher, uh-huh, anything else besides the teacher?

A. No.

Q. And those things, okay, what things would you like to have in your classroom to help you learn, if you could have anythings you wanted?

A. Anything?

Q. Anything.

A. Computers.

Q. Computer, uh-huh, that's a very good idea, anything else you can think of?

A. Typewriters.

Q. Uh-huh.

A. I can't think of any more.

Q. Okay, why would you like to have a computer in your classroom?

A. So the kids if they don't know some answers they can put the question down and the computer tell them the answer.

Q. I see, and why would you like to have something like that, why would you like to have something that would give the kids the answers?

A. So I won't waste my time.

Q. Uh-huh, why do you waste your time if you have to figure out the answer yourself, why is that wasting your time?

A. Cause you have to do other things.

Q. Uh-huh, what other things do you have to do?

A. Reading, math.

Q. Uh-huh.

A. ~~And spelling~~ Those things.

Q. Uh-huh, so the computer wouldn't help you with reading and math.

A. It would.

Q. Uh-huh, and you'd like something that would really be able to help you and give you the answers?

A. Yes.

Q. So ~~you~~ it wouldn't waste your time, why don't you like wasting your time?

A. The kids won't learn.

Q. Mm-huh, I see, don't the kids learn if they're trying to figure out the answers?

A. They do learn.

Q. Would you want them to learn everything from the computer, would you want the computer to give them all the ansers?

A. If they don't know the answer.

Q. Uh-huh, but if they do know the answer, then they don't need the computer?

A. ~~No~~ Yeah.

Q. Uh-huh, well would they learn something if they got the answer from the computer?

A. I don't know, sometimes yes, sometimes not.

Q. Okay: when would it be yes?

A. When would it be yes?

Q. Uh-huh, when would they learn something do you think from the computer?

A. Like instructions what to do.

Q. Uh-huh.

A. ~~And~~ In the book.

Q. I see, would they learn the answers also or just the instructions?

A. Sometimes answers.

Q. Do you think it's good fɒr them to learn the answers from the computer?

A. First I have to see the paper.

Q. Uh-huh.

A. If it's right or wrong.

Q. I see, and if it's wrong?

A. Turn on the computer.

Q. And the computer will tell them the right answer?

A. Yeah.

Q. I see, so they try to figure it out themselves first...

A. Yeah.

Q. And then they sort of check their answer...

A. Yeah.

Q. With the computer, is that what you mean?

A. Yeah.

Q. I see, why is that good to do, to be able to check your answer, to find out if it's right or wrong?

A. ~~x~~ They might cheat.

Q. Uh-huh, and why shouldn't they cheat?

A. It's not fair.

Q. Why isn't it fair?

A. Because you won't learn anything.

Q. Uh-huh, well don't you learn something if you get the answers right?

A. ...

Q. Even if you take it from your neighbors paper, do you learn something?

A. No, you don't learn nothing.

Q. But you do learn if you figure it out yourself?

A. Yeah.

Q. How come?

A. Because if you look at another paper, the answer might be wrong and you don't know it.

Q. I see, but let's say the answer's right, then is it all right to cheat?

A. No.

Q. Well can you learn something if the answer is right that you take from your neighbor's paper?

A. You don't learn nothing.

Q. Why not?

A. Because you're copying.

Q. I see, and why don't you learn things when you copy?

A. Because you're not figuring it out yourself.

Q. I see, okay, what do you think school's for anyway?

A. To learn.

Q. Mm-huh, what do you think it should be for?

A. To learn.

Q. To learn and why do you think it should be for learning?

A. Then why do they make schools?

Q. Pardon.

A. Then why did they make schools?

Q. So you feel like they made schools...

A. For teaching.

Q. For teaching and for learning, uh-huh, and why do you think it's important to learn?

A. Then you'll be dumb and you don't know nothing.

Q. Mm-huh, so if you don't learn, you'll be dumb and you won't know nothing and why don't you want to be dumb?

A. You don't know how to do nothing.

Q. Uh-huh, and why is it bad not to know how to do nothing?

A. ...

Q. ~~MM~~ Mmmm?

A. I don't know.

Q. Okay, now I'm going to ask you some questions that really don't have anything to do with school at all, they're sort of pretend questions, okay, when you're grown up, [redacted], what ~~x~~ two or three kinds of work would you like to do?

A. Doctor.

Q. A doctor, anything else?

A. An artist.

Q. An artist.

A. ...

Q. Anything else you can think of?

A. No.

Q. Okay which would you rather be a doctor or an artist?

A. A doctor.

Q. A doctor, why would you like to do that?

A. I could help people.

Q. Uh-huh, and why would you like to help people?

A. ...

Q. What would you ~~like~~ have to do to ~~x~~ help people as a doctor?

A. At night you have to get up.

Q. Uh-huh.

A. When they call, you have to take them to the hospital so you could go down there to help people.

Q. Uh-huh, and why is it important for you to do that if you're a doctor, get up and...

A. You have to try and save other people's life.

Q. Uh-huh, you have to try to save other people's lives, yeah, why do you think you want to dox something like that, like save other people's lives?

A. I don't know.

Q. You don't know, uh-huh, would you rather save x other people's lives or would you rather x help people?

A. Help people.

Q. What would you do to help them?

A. ...

Q. What kinds of things would you do to help them if you were a doctor do you think?

A. If they were sick, give them medicine.

Q. Give them medicine.

A. ...

Q. And why would you do...

A. Take care of them.

Q. Take care of them, yeah, why would you do those things for people, do you think?

A. To help people.

Q. To help people, okay, when you're grown up, [redacted], what kind of a house would you like to lx live in?

A. I don't even know.

Q. I know you don't know, 7-E-15 it's sort of hard to imagine, someone was asking me these questions the other day and I was thinking and thinking and trying to picture what kind of a house, you know, if you just close your ~~house~~ eyes and you try to think, can you picture the kind of house ~~xf~~ it might be, what it would look like, anything about it?

A. ...

Q. Would it be like the house you live in now?

A. ...

Q. Different?

A. ...

Q. How would ~~x~~ it be different, can you think ~~x~~ of one way it would be different?

A. It would be a little house.

Q. It would be a little house, would it be a house you live in by yourself or would there be a lot of families living there?

A. My family.

Q. Your family, okay, it would be a little house that your family would live in, why would you like to live in a house like that, a little house, let's say?

A. I don't know.

Q. Don't know, why do you think you'd like to live in that house instead of the ~~xxxx~~ house you live in now, this is just a pretend question, you know, what would be nice about it or what would you like about it?

A. I don't know.

Q. Don't know, okay, like you're living in this little house say and you look out the window, what would you like to see out the window?

7-E-16

A. Birds.

Q. Birds, why would you like to see birds?

A. I like birds.

Q. Uh-huh, why do you like them?

A. The way they look.

Q. The way they look, uh-huh, what is it about the way they look that you like?

A. Their heads are a little bit round.

Q. A little bit round, uh-huh, and you like that, why do you like that?

A. It looks nice.

Q. Uh-huh, why does it look nice?

A. I don't know.

Q. Uh-huh, it just looks nice, okay, when you're grown up, [redacted] another pretend question, what would you like your parents to think of you when you're grown up?

A. I don't know.

Q. Can you think of anything you'd like them to think of you?

A. ...

Q. No?

A. ...

Q. Would you want them to think the same things that they think of you now?

A. Maybe, maybe not.

Q. Maybe not, can you think of anything you'd like them to think that would be different, that would be new?

A. No.

Q. What about some of the same things, what would you like?

A. Be smart.

Q. That you'd be smart, uh-huh, why would you like them to think that?

A. I don't know.

Q. You don't know, do they think that of you now do you think?

A. I don't know.

Q. You don't know, okay, what kind of a person will you have to be so that your parents will think you're smart, what will you have to do so that your parents will think you're smart?

A. Go to college.

Q. Go to college, uh-huh, and why would you have to do that?

A. In college they teach things.

Q. Uh-huh, but do they teach you things in school now?

A. Yeah.

Q. Uh-huh, so are you smart now?

A. Yeah.

Q. Do you think you'll be more smart if you go to college?

A. Yeah.

Q. Why?

A. They teach hard things.

Q. Harder things, I see, harder than the things you learn here?

A. Yeah.

Q. Uh-huh, and why will that make you smart do you think?

A. I don't know.

Q. You don't, okay, that was the last question.

Appendix F

COLUMBIA CLASSROOM ENVIRONMENTS PROJECT'S PUPIL ROLE INTERVIEW STUDY

Our Policy for Hiring Persons For the Position of Interviewer

Introduction

For each of our twelve sites, we need to hire persons for the position of interviewer from the local community to communicate with the pupil in the local speech or dialect and to save on transportation expenses. There exists a pool of persons in each local community who might be available for this temporary, part time position:

1. High school students,
2. Parents associated with the local Follow Through Program,
3. Parents related to the local, elementary school system,
4. Adults including parents in the local community who are college students, and
5. College students.

Since the position of interviewer involves a crucial link in the collection of our data, we need to hire persons who have the highest possibility of meeting the general requirements of this position:

a. The interests of the interviewer in the study, apart from his salary,
b. His or her ability to take the views of others, and
c. The interviewer's desire to be accountable to others with whom they interact professionally.

Most high school students would fail to meet these general requirements, and in any case, their class time would conflict with the time to interview pupils. Parents connected with the local Follow Through Program would be ineligible to participate in the evaluation of their own program. Parents connected with elementary schools in the local school system would be ineligible to participate due to the research precaution of avoiding pupils expecting that their confidence and identity may be revealed to others in the local school system. Adults including parents who are in college and college students may qualify for the position of interviewer.

The Rationale for Selecting only College Students or Graduates

CCEP'S Pupil Role Interview requires very skillful questionning strategies on the part of the interviewer, in order to establish satisfactorally the level and mode of the child's reasoning about school. The procedures for this have been derived from the techniques of developmental psychology, and thus we have asked the psychology faculties at local colleges to recommend students for the interviewing. While we recognize that non-college adults might be at least as effective in relating to children, our experience tells us that college training contributes importantly to the interviewer's ability to make on-the-spot decisions about the logic that a child is using. These decisions are necessary for the interviewer to decide when to pursue a given line of questionning further, and when to proceed to a new question.

Criteria for Hiring

In order to meet the general requirements of the position of interviewer, we use the following criteria for hiring:

Personal Attributes

1. A letter of recommendation from a member of a college faculty - - an indication of academic responsibility;
2. An expression of confidence and concern - - an indication of intrinsic motivation;
3. Previous experience interviewing or teaching children - - an indication of ability to take the view of others;
4. Spontaneous response to the Pupil Role Interview - - an indication of directness in communication;

Group Attributes

5. All of the above personal attributes being equal among a group of candidates, choose on the basis of the match between interviewer and pupil in regard to sex and race, when possible; and

Time Available

6. Free time to do the interviewing and to participate in an intensive two day training session.

Appendix G

FACE SHEET (Attach to transcript)

Fill in the information below, at the beginning of each interview:

City____________________ Interviewer's Name______________________

School__________________ Date of Interview______________________

Child's Name______________________ Sex____________

Class____________________________

Tape #_______ (Fill in child's name, school, city and date on tape cassette)

Number of Teachers in Classroom__________________

Head Teacher's Name_____________________________ Sex_____

1st Assistant Teacher's Name_____________________ Sex_____

2nd Assistant Teacher's Name_____________________ Sex_____

3rd Assistant Teacher's Name_____________________ Sex_____

Did child ever have a male teacher? YES____ NO____

Total # of pages of transcripts___________________

7-G-2

INSTITUTE FOR PEDAGOGICAL STUDIES
Teachers College, Columbia University
525 West 120th Street Box 80
New York, New York 10027

Telephone Number: (212) 870-4125 or 4126

Nancy Gropper
Lenny Huber
Carole Oligario
Joe Roberts

(Joe Grannis - if none of the above are available)

If you have any problems that you cannot take care of yourself, call one of the above telephone numbers, collect, between the hours of 9:00 a.m. - 5:00 p.m. Tell the person who answers that you are an interviewer in ____________(city), and that you have a problem and would like to talk to one of the above people.

If no one is available when you call, leave a message, stating what the problem is and where and when you can be reached by telephone.